

OCTOBER, 1910

SELLING ELECTRICITY

The Magazine of Electrical Progress

OPALUX



Narrow Angle 100

The Glass
without
the
Glare



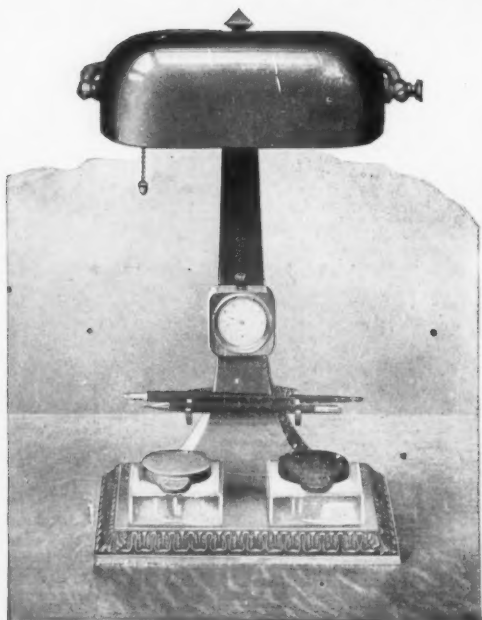
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THE
EMERALITE

"Kind To The Eyes"

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take the chill
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Illustrated here is only one of many practical uses to which they can be put.

Think of the cases in your community where a suggestion from you will sell an electric air heater with profit to your customer and yourself.

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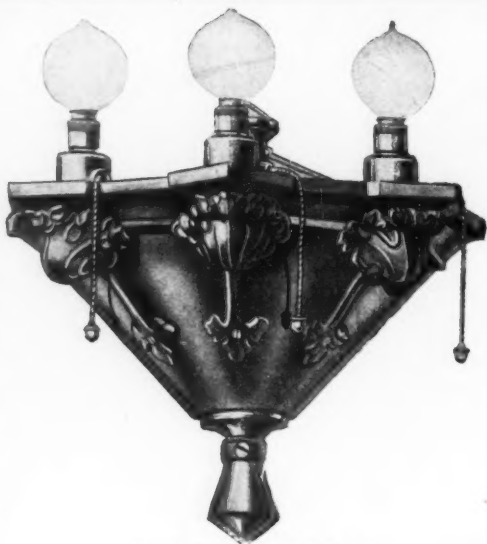
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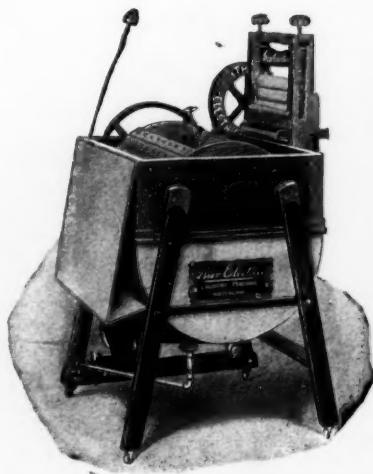
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"WIRE TYPE" (Single Filament)



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Tungsten Incandescent Lamp
FRAGILITY DONE AWAY WITH

The Latest Development in the Art—Strong,
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It is one of the biggest items ever put out for promoting the everyday household use of electric current.

This is a single motor that will perform a dozen different services by the mere addition of various simple attachments. It will run the sewing machine, polish the silver, grind knives, ventilate the kitchen or other rooms, give forced draught to the furnace, operate massage vibrators, run lathes, sign flashers, mechanical toys, or any light machinery, and perform a score of other operations.



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The windows, door and transom are real glass with the evening light shining through. It looks like a little red brick house trimmed with brown—artistic, forceful, and good to look at. That means sales.

This is the kind of a sign Valentine will design and build for you if you want him to, and there is no town where a sign like this can't be put on circuit in a week, if the central station has enthusiasm.

Why don't you sell one of these Little Brick House signs this week? It measures 8 ft. by 10 ft.

Valentine Electric Sign Co.

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In writing to advertisers, mention "Selling Electricity."

SELLING ELECTRICITY

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NUMBER 3

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First: *The "National" Bolt Connector.* On request "National" batteries are furnished with cells joined together by bolt connection—an exclusive "National" feature—obviates lead burning. Cells are easily disconnected, inspected and replaced without the aid of an expert lead burner and his outfit. Only tool needed—a monkey wrench.

Second: *High-Bridge jars.* Where height of battery space permits, "National" battery jars are supplied with three-inch bridges. Necessity for frequent cleaning and removal of sediment is done away with. Mud space is ample to accommodate all sediment during life of plates.

Third: *Choice of standard, medium or thin plates.* "National" plates are of three thicknesses. Experience with the medium and thin types during the past year insures the success of the electric passenger and commercial vehicle. "National" thin plate cells with practically no increased weight have a capacity 55% greater than cells with standard plates. Good life of plates is being obtained as well as greatly increased mileage.

Send for Bulletin No. 102

Let us talk it over with you.

The United States Light and Heating Co.

GENERAL OFFICES: 30 CHURCH ST., NEW YORK

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SELLING ELECTRICITY

Edited by FRANK B. RAE, Jr.

EARL E. WHITEHORNE, Managing Editor

Opportunities

Abstract of Paper read before the New England Section, N. E. L. A., New London, Conn., September 13 and 14, 1910

By Levin J. Chase Manager Concord Electric Company, Concord, N. H.

A member of our association suggested that I write a brief account of my efforts, as a non-technical and newly created manager, to remove the natural prejudice which the public is prone to cherish for a corporation engaged in public service. I call it a natural prejudice because the present generation seems to have been born with a distrust for corporations that serve the public and because it is plain that there are excellent reasons why lighting companies and the like should be regarded with suspicion. Although we have formally renounced the devil and all his works we are still under a cloud and are continually reminded of the eternal verity that the evil that men do lives after them.



Levin J. Chase

I awoke one morning, less than a year ago, and found myself the manager of an electric company in a city of 20,000 inhabitants. It is a city of homes and noted for its ultra-conservatism. I knew almost nothing about the operation of an electric plant and was a stranger to at least 50 per cent of our customers. So far as I could see the only qualification for the position that I possessed was the singular confidence of my employers. For several weeks I groped in the darkness and during that period my condition was much like that of the porcupine who suffered from in-growing quills.

I found the plant in first-class physical condition and the organization was composed of men of high character who had been selected and assigned with excellent judgment. My predecessor was an accomplished engineer and the fine condition of the plant was due to his skill and intelligent foresight. But our relations with our customers and the public generally were not satisfactory. We had a few good friends, a few influential and implacable enemies, and the rest maintained an attitude of dignified neutrality. The latter seemed to take the ground that the worst thing that could be said against us was that there was nothing in particular to be said for us. In other words our virtues were negative rather than positive.

Our service was good and furnished at a fair rate and the customers who came to the office were treated with mechanical courtesy. But no rule was suspended in an effort to please, no traditions were violated and the standards of action set up years before were rigidly maintained. Customers and prospective customers were sometimes sent away in rage or disgust if their wants conflicted in the smallest way with the system. The idea of losing a dollar to get two back was regarded as the pernicious dream of a non-technical enthusiast. A rule forbidding the free renewal of defective tungsten lamps was enforced to the letter. I recall overhearing a clerk in the office, who, by the way, is no longer with us, disputing with an elderly merchant, the best friend we had in Concord, over the free renewal of a tungsten lamp which he honestly believed was defective.

Such in brief was the condition that confronted me at the commencement of my career. At that time I indulged in long periods of doubt and anxiety which I carefully concealed. I was searching for opportunities to win the esteem of the public without breaking rules and upsetting traditions. I thought of all the successful business men that I had ever known and tried to remember their methods.

I finally realized that if we were going to advance the company in public esteem it would be necessary to forget the system for a while and proceed on radically different lines. I had felt all along that a public service corporation which enjoys a monopoly is under especial obligations not only to provide a satisfactory service but to maintain a broad minded and liberal public policy; consequently, I made up my mind to line up the company with the progressive element of the community and make it one of the leaders in all movements in the direction of civic progress and improvement. I took the ground that if we were to acquire a reputation for public spirit we should not wait to be drafted into such movements but volunteer,

thus making a virtue of what would probably be a necessity.

I found that a prolific source of dissatisfaction was the large number of trivial charges that were made for trivial services. If we helped a customer out of a little trouble with his lights he was charged with the man's time from the moment he left the shop. These charges produced very little revenue and an endless amount of irritation and they are not made now without the manager's approval.

My first serious task was impressing upon the organization my personal idea of our proper relation to the public. I tried to teach them the value of an unexpected courtesy and the unadulterated poison in the cant expression that "Offered services are unwelcome." I persistently taught the time-worn doctrine that the success of a business depends largely upon the personality of the employees. I pointed out the necessity for patience, courtesy and dignity in their relations with each other and the public. I called attention to the well-known fact that many customers know the company solely through the meter readers and that they should be careful to faithfully represent its aims and policies. I insisted that a customer with a grievance should be treated as if his trouble was real until it was proved otherwise. I told them that a customer in trouble was a fine business opportunity and to make the most of it. I was frequently met with the objection, "If we do that for one we will have to do it for everybody," to which my invariable reply was, "Well, do it for everybody and do it as if you were mighty glad of the opportunity."

I spent a great deal of time trying to fix upon the best method to pacify customers with an ancient grudge and finally came to the conclusion that it could not be done by sitting in the office and giving them absent treatment. The more we think of such matters the worse off we are. According to the dictum of Dr. Samuel Johnson, the man who stands irresolute in

a cold room trying to decide which leg he will put into his trousers first is likely to catch cold. Do something, do it graciously, and do it at an *opportune moment*.

It should always be borne in mind that a disgruntled customer or a down-right enemy furnishes fine business opportunities. If it is an old grudge, so much the better because a convert is always more radical than the one who stays put. In our business, as in politics, the insurgent whose wounds have been dressed becomes a good citizen and an agreeable companion.

When I looked over my field I found that one of our largest customers was our most active and vindictive enemy. His appearance at the office was always the signal for thunder, lightning and oral fireworks and I decided to call upon him and have it out. I was warned to keep away from him, but persisted in my purpose. One of the advantages of being non-technical is that you don't know a live-wire when you see one. I was ushered into his presence and if he was glad to see me he concealed his pleasure with entire success. After an attempt on my part to break the ice he asked me what I wanted and I told him that it was my purpose to find out what he wanted. You may be interested to know that after a somewhat spirited conversation I unburied the instructive fact that the sole reason for this old grudge was an uncivil answer that he had received from one of our employees over the telephone. His material wants were few as he was perfectly satisfied with the service, but he was offended by our attitude of indifference. Today that man is one of the most active friends that we possess and all that his good-will cost was a few hundred feet of copper, which is rapidly paying for itself, and some tungsten lamps to which he was clearly entitled.

That is a typical case and other wrinkled fronts were smoothed out in much the same way. An intelligent and friendly interest in their welfare will win the confidence of nine business men out of ten.

The prevalent habit of treating all customers alike is in my opinion a grave mistake. I don't mean that there should be illegal discrimination or favoritism, but there should be a careful and intelligent discrimination of attitude. The trickster with a grievance and the reputable citizen with the same trouble are two entirely different matters and should be so handled. The manager in particular should qualify himself to meet all sorts and conditions of people from the highest to the lowest on their own ground and as far as possible familiarize himself with the character of each. If he possesses sufficient technical knowledge to meet ordinary emergencies so much the better. Treat every caller so that he will call again and don't feel that you must talk shop. The colloquial prattle of the salesman does not appeal to everybody, and right here a legal discrimination may be wisely practiced. If, however, our conversation must be in accordance with the standards of the barber-shop, much time and trouble will be saved if we embody our thoughts in a series of rubber stamps. Many managers are so engrossed in technical abstractions that they have no time to devote to the leisurely customer, but it seems to me that in confining themselves to the study of voltages, phases and frequencies they are neglecting golden opportunities to strengthen themselves with the public.

The opportunity given to every manager to visit at regular intervals all large consumers I found of especial value in various ways. By no other method can the manager become acquainted with the customer who either will not or cannot come to him and in no other way can he so completely ascertain his needs. He may not need anything but he appreciates the spirit in which such a call is made.

The manager should not fail to take advantage of the opportunity to cultivate cordial relations with the newspapers in his town. The good-will of the press is an asset that can

scarcely be overestimated as it means each year a large amount of free and effective advertising. By use of a little discretion and a judicious suppression of self, the activities of the company can be fully and inexpensively kept before the public.

The opportunity to maintain friendly relations with city officials should not be neglected. In Concord the chief of the fire department has recently become an honorary member of our social club and there is a continual exchange of good offices between the company and the other city officials, more particularly the street commissioner and city marshal.

The opportunities for a manager to ingratiate the company with the public, through the medium of his organization, are so many that it is impossible for me to cover them in this paper even in the briefest way. The organization is the "bus-bar" of the company that distributes either confidence or distrust into the remotest corners of his territory. Unless the employees from the humblest to the highest reflect in their conduct the policy of the company the best results can never be attained. This is particularly true now that central stations are beginning to realize the importance of residence lighting, a branch of the service which takes them into the inner precincts of the home.

Let me point out one more opportunity for a manager to strengthen his company in public esteem and then I must close. Maintain rigidly the dignity of your position and the company. Nothing is gained by meekly and weakly submitting to insults and unjust abuse. There are times when the possession of a spine is an asset rather than a liability. When a customer threatens to terminate the service, giving no opportunity for courteous explanation, I always meet him half way and unless he recedes from his position, the meter is out before he gets home. In pursuing that policy during the past year we have lost just one meter, which, by the way, is not likely to be restored.

I would like to say a few words about the man—the man we employ to do our work. Methods of handling men have changed radically during the last quarter of a century and the day has gone when we can get the best out of good men by harsh measures. It was said of the Roman soldier that he was more afraid of his officers than he was of the enemy and that policy carried with it the seeds of its own destruction. In the long run cold-blood does not pay as a settled business policy and the autocrat is rapidly giving way to men of kindly instincts and broad humanity.

There should be a feeling of mutual confidence between the man and his employer and the duty of building up that feeling falls largely upon the employer. It is impossible to create this relation if the employer puts on a counterfeit dignity in an effort to maintain a dead-line over which the employee must not cross. Dignity is not an outward sign, but an inward grace which is felt rather than seen. The man who does not feel quite sure of his fitness to rule holds himself aloof from his subordinates, just as a bogus aristocrat endeavors to hide his humble origin behind artificial exclusiveness and simulated pride.

We should make it a part of our business to know our men, their hopes, their fears, their aspirations and their troubles and stand ready at all times to give them help and encouragement. It should ever be kept in sight that the man who never wavers in his fidelity to his employer cannot be paid in dollars and cents and the confidence that you repose in him and your tacit recognition of fellowship is his only recompense. That is the policy, vaguely outlined, of the men in control of our allied companies and to the oft repeated question, "Does it pay?" they answer flatly and emphatically that it does.

The position of an electric light company in its territory depends, first, upon the character of its service and, second, its attitude towards the pub-

lic. The effect of the best conceivable service can be utterly ruined by a policy of indifference or negation. If we are to get the highest results we

must go about our work with quiet enthusiasm, serenely confident in the excellence of our product and in the integrity of our purpose.

Notes on Special Decorative Street Lighting

Abstract of Paper read before the New England Section, N. E. L. A., New London, Conn., September 13 and 14, 1910

By. J. A. Hunnewell, General Superintendent Lowell Electric Light Corporation, Lowell, Mass.

To New England cities, special or decorative street lighting should be better street lighting. Is not this rush to special or decorative street lighting throughout our country an hysteria resulting from too long suppression of efficient, complete and satisfactory street illumination?

To change our present system of street lighting to an ornamental one need not include elaborate posts, fixtures and lamps, but, instead, possibly a rearrangement of the present equipment and introduction of more units with resulting better lighted streets.

The best for our customer is the best for our company. Properly lighted streets are the best customer on our lines and we should foster this service more faithfully than that of our largest store. In the latter, we urge the use of the most modern equipment and make sure that the best results are given, while with the streets we, at times, are not so persistent.

Too often our cities have been unwilling to pay for the latest or best system of street lighting, unwisely believing the expenditure not warranted. In the system in use, frequently the lamps are not installed to the best advantage for good street illumination, but are located in a manner to place the city officials in the good graces of certain tax payers by flooding their frontage with light, and of certain other tax payers, by keeping their frontage in darkness. The fault lies not wholly with the cities in every case, for the central station has the burden of responsibility, and may have at times failed to recommend an *efficient street lighting system*, to explain

its advantage and value that the city officials might understand, and also to effectively urge its adoption.

Today, the streets of some New England cities are lighted with old, open arcs and carbon filament incandescents, long since surpassed for this work by the enclosed arcs and tungstens, which in turn are being hard pressed by more modern units. In many of our New England cities and towns the street lighting systems are composed of old, crooked, spike-chewed poles, supporting and supported by cobwebs of wires with shredded insulation, and from these poles arc lamps are hung by means of mast-arms.

To erect in their place clean, wooden or iron poles with neat, supporting crooks for the lamps, and straighten out the overhead wiring would produce such a shock to the citizens that further improvement would be unwise. If we want the citizens to know that they have a good Electric Light Company, we must give good street lighting. Ninety per cent of our citizens see the Electric Light Company in the street lighting service. Each of them can tell when the streets are well lighted and is pleased.

In the days of old, city improvements were made when public safety or comfort compelled, but today great effort is being made to create a more beautiful city. We should not endeavor to light the city as necessity demands, but rather light it in keeping with modern progress. Street lighting has reached the stage where it becomes something more than a silent police officer. We must have our city comfortable and beautiful at night as

scarcely be overestimated as it means each year a large amount of free and effective advertising. By use of a little discretion and a judicious suppression of self, the activities of the company can be fully and inexpensively kept before the public.

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Too often our cities have been unwilling to pay for the latest or best system of street lighting, unwisely believing the expenditure not warranted. In the system in use, frequently the lamps are not installed to the best advantage for good street illumination, but are located in a manner to place the city officials in the good graces of certain tax payers by flooding their frontage with light, and of certain other tax payers, by keeping their frontage in darkness. The fault lies not wholly with the cities in every case, for the central station has the burden of responsibility, and may have at times failed to recommend an *efficient street lighting system*, to explain

its advantage and value that the city officials might understand, and also to effectively urge its adoption.

Today, the streets of some New England cities are lighted with old, open arcs and carbon filament incandescents, long since surpassed for this work by the enclosed arcs and tungstens, which in turn are being hard pressed by more modern units. In many of our New England cities and towns the street lighting systems are composed of old, crooked, spike-chewed poles, supporting and supported by cobwebs of wires with shredded insulation, and from these poles arc lamps are hung by means of mast-arms.

To erect in their place clean, wooden or iron poles with neat, supporting crooks for the lamps, and straighten out the overhead wiring would produce such a shock to the citizens that further improvement would be unwise. If we want the citizens to know that they have a good Electric Light Company, we must give good street lighting. Ninety per cent of our citizens see the Electric Light Company in the street lighting service. Each of them can tell when the streets are well lighted and is pleased.

In the days of old, city improvements were made when public safety or comfort compelled, but today great effort is being made to create a more beautiful city. We should not endeavor to light the city as necessity demands, but rather light it in keeping with modern progress. Street lighting has reached the stage where it becomes something more than a silent police officer. We must have our city comfortable and beautiful at night as

well as by day. Street lights no longer serve as beacons only, by which to trace one's course, but should serve to illuminate the streets to make a nightless day for travel.

The value to our cities of better lighted streets is positive. You, yourself, shun dark alleys and seek well lighted streets. The best lighted street carries the greatest crowd. Increased lighting increases traffic, and where traffic is most dense the property value is the highest. The well lighted streets of our city will bring trade for our merchants from the outlying districts; will give the visitors a pleasing impression of our city, and will shed an atmosphere that encourages civic pride and progress among our citizens.

For the central station to increase street illumination is to increase its income, not only from the city, but from the merchants, who find that brilliantly lighted streets make their stores dark by contrast. We need fear no criticism for advising our municipality to purchase better street lighting. We may fail more fatally by not urging better street lighting and taking the initiative than by awaiting the inevitable awakening of and action by the city. We are public servants, but we serve the entire public in the street lighting only. Let that be good street lighting.

The improvement will be greatest in the business section, and we must determine whether to look to the merchants or to deal with the city. Over 75 per cent of such improved lighting installations in our country, all in the western cities, have been paid for by the abutting merchants or property owners. Why? Does the fact that in nearly all of these installations the movement originated with the merchants themselves, and not from the central stations, signify that the latter were remiss?

The merchants of the East are not those of the West; here they make money by saving it; there they make money by spending it. It is quite uneasternlike for our merchants to club together and demand that this

lighting be furnished at their own expense. Why should we expect them to do so? Why not expect the property owners or tenants along our business street to pay the cost of expensive pavement, extra police protection and extra fire protection? These merchants and property owners are among our heaviest tax payers, and street lighting is in the line with expenditures for street building, fire and police protection, and benefits in a similar manner the public as a whole.

When merchants band together for this improvement, the result is often unbalanced lighting throughout our business sections; here a blaze, and there a blank. Also banding of our merchants from side to side of the street, or from street to street, does not tend to harmonious spirit of co-operation among them for the public good. However, of the thirty installations, concerning which I have been able to obtain this information, twenty-six were made by the banding together of merchants, three by request of the city council, and one by the efforts of a private contractor.

Whether we look to the merchants or to the city, our method of obtaining it will be the same. Inform the people. Newspapers will aid with descriptive accounts of this lighting in other cities, and point to the possibilities for our own city. These accounts may be accompanied by effective advertising in these newspapers by the central station, outlining tentative plans for an installation and benefits to be derived therefrom. You will find some party in the city government or among the merchants who will gladly carry the attack along, and a judicious amount of personal solicitation by your commercial force among the property owners and merchants will bring up the rear. At the proper time install the proposed system along some block or street that they may see the contrast and improvement. If your Puritanic spirit will permit, the night the completed installation is first lighted give the public a band concert (as has been

done in the West) and make a permanent and favorable impression.

In passing, the time to take the matter up with your city may be when your street lighting contract must be renewed. Your income can be maintained or increased and the city served and pleased as well.

We should eliminate the spectacular and choose the system that will give the best practical service to our city. If advertising is the paramount requisite, four or five search lights properly installed and flashed intermittently now on the streets, now on the heavens, would be effective. Local conditions govern the selection of the proper system to install. If the streets are covered in with shade trees, or are narrow and crooked, tungstens are best, since arcs must be placed at greater distances to be efficient. Arc lamps do not lend themselves for strictly decorative lighting as do incandescents, but produce fully as good illuminating results and minimize the number of poles and fixtures on the streets.

If economy is imperative, trolley poles may be utilized or ornamental posts designed and built locally. In using trolley poles, ornamental casings can be secured to fit outside the poles and overcome the effect of the rake with which trolley poles are commonly set. In some cities, the street railway company will reset its poles that they may be upright, and the ornamental casing may then be eliminated, resulting in material saving. The use of trolley poles affords a great advantage in eliminating multiplicity of poles on the streets.

That the system shall consist of a continuous line of light along each side of the street is imperative, that the effect may show the street broad and open and maintain a pleasing aspect during the day. Ornamental standards should be selected that carry the lamps in a pendant position to avoid shadows which would be thrown by supporting arms if the lamps were upright.

If we look to other cities for information, we shall find that there are in use

four distinctive types of decorative street lighting:—

1. Arches or festoons over the streets.
2. The Daniels Boulevard System.
3. Posts or standards supporting clusters of tungstens.
4. Arcs hung from ornamental arms or brackets.

Arches or festoons across the street give the street a shut-in effect, are unsightly during the day, are a handicap in fire fighting and savor of the "night before Christmas."

Certain merit is claimed for the "Daniels Boulevard System," which consists of a well designed column and capital, surmounted by a 20-inch opal ball globe containing an arc lamp of great brilliancy. The light is free from shadows, well diffused and equally distributed. This is in general use in Chicago parks and boulevards.

Clusters of tungstens supported by an ornamental post is the most popular method of decorative street lighting. Of 65 installations investigated, 40 were using tungsten clusters; 15, arc lamps, and ten, carbon lamps, which are no doubt replaced by tungstens.

The supporting posts vary from elaborate and expensive metal posts of special design to the use of the already existing trolley poles. Occasionally the posts are of local manufacture, the possibilities of which are shown by the one used at Mishawaka, Indiana. This post consists of a few simple and inexpensive castings and standard pipe fittings, and is very attractive.

The best installation of decorative street lighting with tungstens I have seen is at Indianapolis, Indiana, where the city streets are wide and well laid out, thus lending themselves readily to good lighting. The system is of ornamental pressed steel posts, supporting five 100-watt tungstens, in opalescent, diffusing globes,—one upright, 16 inches in diameter; four pendant, 12 inches in diameter. The posts are 84 feet apart on each side of the street and lamps are fed from a three-wire lead cable, laid in four-

inch duct located one foot from the curb and one foot under the gutter. A double-throw switch at corner posts controls an entire block and permits throwing off the four pendant lamps at midnight, while the upright lamp remains burning all night.

Arc lamps hung from ornamental arms, brackets or goose necks make an efficient and attractive installation. Among the many installations, we find various arrangements. Tall poles with goose necks supporting intensely luminous arcs, ornamental poles supporting one, two, or three arcs from

shepherd crooks, and ornamental poles supporting two arcs from side brackets and the third hung from framework from above.

Two of the most interesting arc installations are found in Boston, Mass., and St. Louis, Missouri.

In the cities of European countries, little spectacular street lighting is attempted, but invariably the several business streets in their cities are equally well if not better illuminated than the streets of our American cities, who boast of their special street lighting installations.

Rates

Abstract of Paper Read Before the Pennsylvania Electric Association, Glen Summit Springs, September 14-16, 1910

By L. H. Conklin, Eastern Pennsylvania Railway Co., Pottsville, Pa.

The rate question has always received much attention, but comparatively little real scientific treatment. Conclusions have been drawn based upon theoretical analyses, but in a very few papers have the fundamental conditions been thoroughly digested and a rate scheme built on conclusions obtained therefrom.

Mr. Doane's paper read at the recent convention at St. Louis has treated the subject of cost in a way that cannot help but impress all careful readers with the absolute necessity of facing the problem of high efficiency lamps, not only in the light of the present conditions, but looking ahead to the time when our lighting load may consist entirely of these lamps, or as is probable, lamps of still higher efficiency. If we recoup our losses, due to existing customers changing to the higher efficiency lamps, simply by the addition of new business as fast as we lose existing revenue, we have simply lessened the possibility of greater profits to come. We have mortgaged the future to tide us over the present.

Improvements must be made, and no central station man, can stand between the manufacturer and the

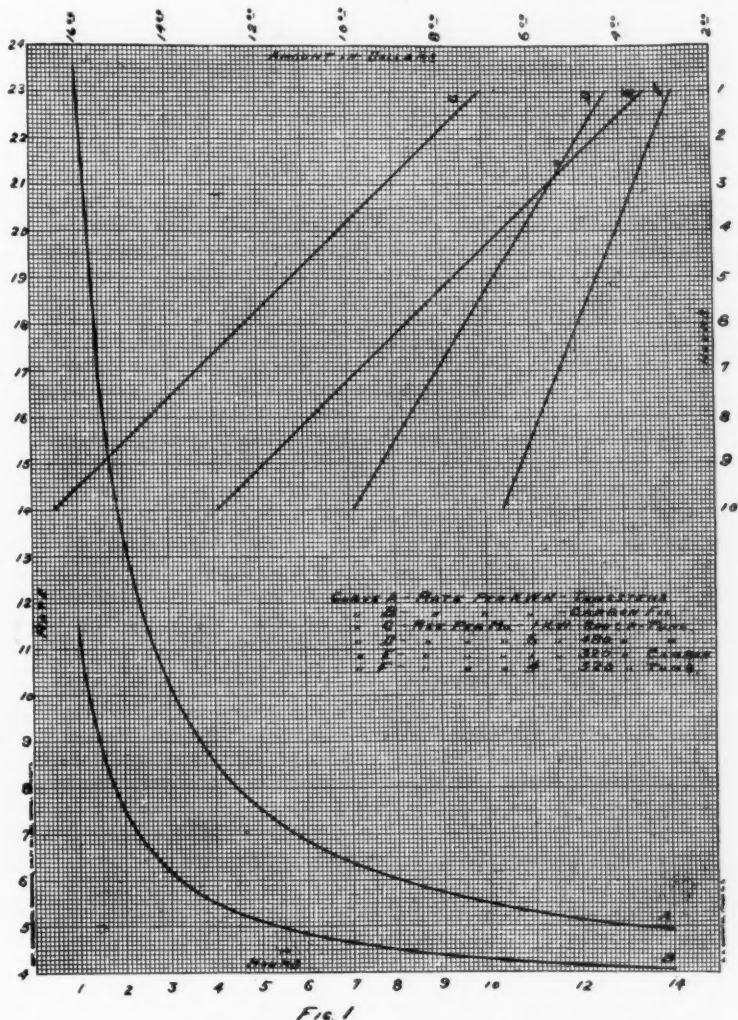
public in these developments toward greater efficiency. Most of us realize now, and many have realized from the first, that the higher efficiency lamps are destined to be a great thing for our business. It only remains, then, for us to provide that during the changing conditions, the central stations will not be obliged to shoulder the whole burden of this saving to the public and profit to the manufacturer. This the stations are sure to do, if they do not meet this new condition by a proper method of charging.

If these improvements are to be for the ultimate good of all, then everybody should bear his pro-rata share of the development charge, but it is not fair for the central station to bear all the burden of this saving, even though this loss in revenue will be made up by additional business, which might or might not have been procured if these lamps did not exist. We may think the tungsten lamp has opened up new possibilities to us, not otherwise obtainable, where in reality it may have only caused us, by force of necessity, to put forth greater endeavors to get business where before we believed it did not exist.

We provide lines and equipment

for lamps which are on the market today. We interest capital on the strength of present earnings, and the prospect of increased earnings to come. Our apparatus is carefully selected to suit conditions as they exist today. Is it fair, then, because a lamp of distinct advantage to the

And this is the real situation,⁵ as far as some stations are concerned. Then again, by the use of some rate schemes, the more business we take on, the greater our ultimate loss, which may be concealed temporarily by the business remaining and not on tungsten lamps or by the power load. Under



public is invented tomorrow, cutting our output and making it possible to utilize only a part of our apparatus, that the company should be forced to take the burden of all this saving, since the only alternative left open to save it from disaster is to hustle for new business to make up this loss?

many of our rate schemes, we will soon be operating at a loss, as far as this class of business is concerned, and it does not alter the facts at all, if we make up this loss by the profits on other classes of business.

No manufacturing concern, in bringing out a new device, attempts

to sell it at first at the same price they are willing to take later on, when the development charges have been recovered. These very lamps in question were sold, and are still being sold, at a higher price than that for which we will later on be able to purchase them. This is done so the manufacturing companies can get back from their customers the outlay for development charges, tools, etc., for their manufacture. We consider this fair and pay without question. Why should we not be entitled to the same consideration in our business?

Have the central stations generally met this new situation so that their customers pay them for this transition stage, which corresponds to the development charge in the manufacture of a commercial article? In most cases, no. They have simply put forth greater endeavors to get new business and have boasted of the fact that tungsten lamps have not affected their revenue. The redeeming feature has been so far, that tungsten lamps have been applied largely to the mercantile houses only, and for display where in most cases the standard of illumination has been raised often enough to compensate for the greater economy of the lamps. In this way existing revenue has not been affected. The additional profits which might have accrued, however, through this raising of the plane of illumination has been overlooked in the satisfaction of keeping the revenue to its former value.

In the future, however, the tungsten lamps bid fair to invade the fields where lighting for advertisement is not an object, such as in residences. It is quite probable that if the rate scheme does not take care of this situation, existing revenue will be cut in almost direct proportion to the saving of the lamps. The introduction of these lamps has interested three classes of people—the customer, the central station and the manufacturer, and up to the present writing, the central station is the only one that has not directly profited. The manufacturer

has been making a good profit on his lamps; the customer has been gaining on his bills, or getting more light, which is the same thing, whereas, the central station has been forced to struggle harder to keep abreast of this progress. Had we all a full realization of the cost of service, we would long ago have had a uniform rate. We would have found, too, as it is fast being impressed upon us now, that the output of the plant is not by any means the greatest of our costs, and it is fast decreasing in its proportion to the total.

The question is, are we selling energy or service? If the former, then our responsibility and attention to the output should cease at the switchboard. It is clearly impossible to sell our output in this manner without distributing the same and rendering certain service. Allowing then that this distribution and service must be rendered, we have inevitably introduced other elements into the cost of service other than the cost of manufacture. This service is just as surely a part of our business as the production of current, and we should be paid for it in the same proportion as it bears to our total cost. This service can only be measured by some standard that takes into account all of the elements of our cost and delivers the completed article, which in our case is light. We are then selling light, and if such is the case, why not charge for light and use the unit basis, which is generally accepted as a standard of light, viz., the candle-power?

Our total service cannot be charged for, however, on the candle-power basis, because some form of lighting takes more energy than others, and some customers will use the light longer than others. The energy therefore should be one of the elements of the total cost to the customer, thus making it an object for the customer to economize in the use of this energy and be an incentive for him to use the most economical lamp. There is another charge, too, that is independent of the amount of light or of the energy.

This is the total of those elements of cost that are chargeable to, and vary as the number of customers served and is a true customer charge.

The so-called three-rate scheme is undoubtedly the one that is nearest to being theoretically correct, consisting as it does of a customers' charge, a demand charge and an output charge. There are many ways of arriving at this demand charge, some using the kilowatt to measure the demand, others using the floor area, frontage of the building, the

cases where the total connected load is never used at any one time.

There are commercial difficulties in the way of a three-rate scheme that cannot be overlooked. The sum of the customers' charge and the demand charge are constantly becoming a greater proportion of the total cost, but are not increasing each in the same proportion. The demand charge is increasing somewhat as the higher efficiency lamps are more generally used, for the customers' charge is increasing at a much higher rate than the demand,

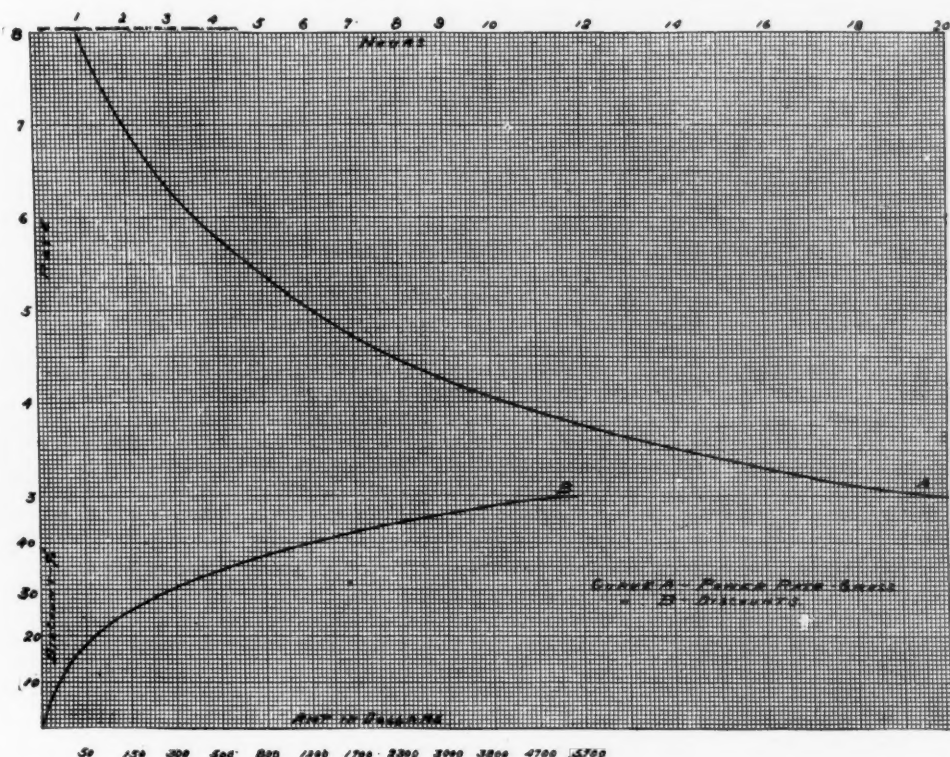


FIG. 2

number of sockets, etc. All of them, however, are means to an end, the end being to arrive at some equitable measure of the customers' requirements on the station and, in my judgment, the most equitable measure of this demand at the present time, at least, is on the basis of candle-power. Not necessarily the total candle-power served, but some proportion of it in

consequently there will continually be readjustment necessary between these two charges in order to keep the rate at all times properly proportioned.

In considering this question, we must realize that we have to deal with three different stages. One is the stage which we have passed through, where carbon lamps were practically the only standard, and a great propor-

tion of this form of lighting was done with that lamp. Then we have what might be termed the transition stage, where the carbon lamps are gradually being replaced by other and more efficient types of lamps, and then the final stage, which is more or less speculative, when the carbon lamps have been entirely supplanted by lamps of higher efficiency. This transition stage, or present, may last for years, and we may never arrive again at a condition where any one lamp will be typical of our entire load, nor is this necessary to a proper readjustment of our charges. We cannot hope to discount the future too far ahead, but must have our charges in such shape that no development in the future will ever threaten us as this present situation has threatened. The demand and customers' charges can very well be combined, I believe, for the transition period at least, thus making a demand charge based on candle-power and the output based on kilowatt hours used. When we have finally changed and gotten down again to a fairly stable condition, it will then be time enough to segregate these charges properly proportioned, if deemed best at that time.

If we confine ourselves to a two-rate scheme, that is, a demand charge based on candle-power and a comparatively low price per kw. hour, either one or both of these factors can be reduced from time to time without the awkward explanations which might be necessary under a three-rate scheme should we periodically be forced to increase the customers' charge, even though we might reduce the other charges. The customer will probably oppose an advance in any one of these elements, even though his total bill per month might not be any greater, or possibly less.

A revision downward is always acceptable to the public, but a revision upward in any of the elements leads to opposition. There is danger, too, in making the cost of energy too low, for it encourages waste, as the incentive to economize in the use of light is not enough of an object to offset

the little inconvenience that such economizing requires. Charges may be so proportioned that even the wasteful use of energy would not seriously affect the result; still all energy used above legitimate needs is waste, and waste means cost, no matter how it may be disguised, and gives our gas friends just that much of a handicap. We not only want to get all we can from the service sold, but we want to be able to sell at a price which will bring us all the business.

I submit here for your consideration, a set of curves, Fig. 1, for a rate scheme of this kind. I do not claim that this rate is the final solution. It has been adopted in a city of 90,000 people, where competitive conditions previously prevailed and the rates were anything that could be obtained. I had hoped to have more data as to the working of this rate in actual practice before presenting this paper, but unfortunately I have no such information to give you at this time. Nor can I state exactly the effect on the revenue of the company, above referred to, for the reason it has not been in use long enough to get comparisons. Only a test will show up the weak points of any basis of charging and we will know more about this one later on. I submit it to you, however, to illustrate what I consider a fair rate scheme to tide us over during the transition state, keeping our revenue up to where it should be.

This scheme is based on a charge of 3-4c per month per candle-power of the demand as agreed upon, plus 3 1-2c per kwh. of the energy used. When conditions warrant it, this demand can be readily reduced and a customers' charge submitted for the portion dropped off.

This paper has so far dealt entirely with rates as applied to lighting. The question of charging for power is somewhat different, of course, but the basic principles are the same, and there are considerations which demand a little different treatment, especially at this time. I do not propose to touch more than touch on the question of charging

for power, as it seems to me this question is not nearly as vital right now as the question of charging for light. By that I mean that conditions surrounding the sale of power remain practically unchanged, whereas in lighting we have a changing condition to meet. I will simply submit a rate scheme for the charging for power, which has also been adopted in the same city referred to herein. Fig. 2.

This consists of a charge per kwh. depending upon the hours use per month of the customers' demand. This maximum demand may be measured or agreed upon in advance. The hours use of this demand determines the gross rate, regardless of the size

of the installation. This gross bill is then determined by the use of this rate and the customer is allowed discounts according to the size of his bill.

In this manner the initial or gross rate is fixed upon his load factor and his discount fixed upon the size of his bill, thus recognizing the rights of a wholesale customer to get his power cheaper than a retail customer, even at the same load factor, due to lesser investment per kw. of service and the smaller overhead costs per unit of demand which is true of all large customers, as compared with the smaller ones. This wholesale principle is recognized in all lines of trade and needs no lengthy defense.

Arming the Salesman

A Comparison and a Few Questions

By W. E. Bayard

Every year about the end of June there appear in newspaper and magazine sundry articles and photographs headed, "Dig-Deep University Graduates 575 Engineers," or "Three Hundred Full Fledged Engineers Take the Sheepskin in Wisdomville." And about the third time we read such an announcement we say, "Lord have mercy! Where do they go? Where can they find jobs?"

Ten years ago the graduate engineer, electrical, mechanical or otherwise, was looked upon as a high-geared specialist, a man who had some part of a small fortune invested in an education which naturally would have to begin paying dividends. Therefore, he was a high-priced man from the jump, according to the scale of the times, and as an engineer, he was set to work engineering, which meant, in the manufacturing world, perfecting and producing the thousand and one items that are handed to the salesman to sell.

The salesman was caught young and set to work to learn the business. This consisted largely in getting the line by heart, stock numbers and "reasons why" and digesting the

thousand and one details of the office end—handling the accounts, following the traveling men, and so on. Finally, he went "on the road" and made good or not according to his lights.

But the idea of sending out an engineer to sell goods had not evolved. Today, however, the large majority of young men who are carrying grips and price-books for the big manufacturers of electrical apparatus are engineers, for the simple and sensible reason that since with overproduction the market price has dropped, the manufacturer takes the man who already knows the most. The engineer-salesman has to be broken in *as a salesman*, in exactly the same way as the boy out of high school, if his ability as a useful salesman is to be equal, but in addition he possesses a mechanical knowledge of what can be done by the machines that makes him more valuable. His college course, backed up by the study of the natural laws and precedents which govern the system of any successful manufacturing organization, make him a pretty solid salesman. He has assimilated exact data and precept

that lines out his course like a pair of steel rails, and his personal success at the start rests on his discretion in applying the brakes and throttle.

The central station industry suffers today from the lack of just such facilities for the practical education of its business men, the staff which creates the market which provides profitable business. The power house and distribution problems are taken care of just as in the manufacturing establishment. It is an exact science, and engineers and mechanics are easily procurable who have the education and the trained experience to generate the current and maintain the lines, even as the motor or socket builder can secure engineers, mechanics and clerks qualified to cast, stamp, finish, assemble and ship his product.

But when it comes to the central station salesman the comparison fails, for what engineering degree turns out men equipped with the right data to put them in tune with all the classes of men they must do their business with? Where do they gather the miscellaneous experience that would enable them to advise with their customers as does the engineer-salesman who calls on engineers and contractors for the motor manufacturer? There is no college degree at the present time that covers a knowledge of human nature in a city where the central station has gotten a bad name, in all probability largely because there were no such men to represent it on the order line.

Moreover, even the old method which the manufacturer employed to "bring up" his salesmen in the days when engineers were scarce and costly, are denied to the central station. The socket maker's traveling man learned the stock numbers, what each item was for and why they were better than the competing line, studied a bit of "the policy of the firm" and the sacredness of credit and went out into the world to find himself. He had all the data he needed and the rest depended on his innate sales instinct and his ability to travel late

and get up in the morning. But when the central station hires a future salesman, unless he is put to keeping a book which temporarily bars his progress, his first day puts him in contact with that public which is his constant problem. Whether he begins by reading meters or in the office display room, he is asked a hundred questions every day that influence for or against a sale, he is "handling the public."

There are no stock numbers he can study so he will "know the line" before he is passed out as a salesman, though too often branded "solicitor" as a sort of an invitation to the bull dog. He is launched as an educator and a diplomat before he has had a chance at his own learning or realizes the dangers that his diplomacy is intended to forfend.

"Well, what are we going to do about it?" is the natural question. "What is the use of talking discouragement if you have no helpful suggestion to make?" There are several.

It is a basic characteristic of the business that every individual employee who comes in contact with the consumer, and with the non-consumer officially, is either a danger or a good influence. There is practically no intermediate position. As Mr. Levin J. Chase, Manager Concord (N. H.) Electric Company, expressed it in his remarkable paper before the summer convention of the N. E. L. A. New England Section, held in New London, last month—he was talking of conditions, as he had found them in Concord—"We had a few good friends, a few influential and implacable enemies and the rest maintained an attitude of dignified neutrality. The latter seemed to take the ground that the worst thing that could be said against us was that there was nothing in particular to be said for us. In other words, our virtues were negative rather than positive."

A negative reputation is of no use to a central station. If your representatives are not making favorable impressions you are drifting away from

the goal. This is a condition we have to meet, and as every salesman must start in a green hand, the task is to educate him as fast as possible to make him a positive factor in the game without dangerous delay. There's the point.

Therefore, how can we educate him? How can we break him in to "know the line"? The trouble with most central station salesmen is that they haven't their heads full of definite data for use in meeting every argument the prospect advances. How many salesmen can mention the number of homes on a well-to-do residence street that are equipped with irons, as a suggestion to a woman prospect still without the fold? Or, how many people in the town have changed from gas to electricity in the last year? Or, how many toasters are on circuit, how many turn-down lamps, and how much juice do they consume in a month in average service? What two or three enthusiastic consumers can be mentioned as reference in talking on baby's milk warmers, heating pads, kitchen motor outfits and all the other applications, be they domestic, commercial or industrial, light, heat or power?

Too much to carry in the head? Surely, but how about the little red book? It is all useful data and the very sort that is the most clinching argument.

How many salesmen do you suppose can answer quick off the bat, how many houses there are in town using current for light? Or, in fact, many of these practical questions:

What is the average light bill for a family of five in an eight-room house?

How many signs are there in town for how many stores? If you are talking to a barber, how many are there on barber shops?

How much traffic passes down State street or any other street during the evening?

How many people stopped to look at Jackson Bros.' window the night before the new installation was put in and the evening after?

What effect has there been on the bills

of several people you can mention after washing machines were installed?

We could ask a dozen more in similar vein and every one as practical as an aid to closing central station business. It is just plain, definite data which can be worked up truthfully in every city, and it makes the most convincing, appealing argument possible, for it is absolute proof of sincerity and enthusiasm, which are synonymous.

It requires no figure trained statistician to work up this kind of information, no burden of red tape; simply a little co-ordination in the sales department, a little watching of a customer's bills and investigation of their fluctuation. But it is just the kind of offensive and defensive armour with which you should equip the new salesman before he is ever allowed to sally forth to jeopardize the reputation of the company. Why should he be cast out to get his entire training through watching the older man and learning from his customers? Some of this is costly to the company's prestige.

With the power man the case is somewhat different, for he works with a more exact concrete proposition, and the manufacturers supply him with as much as he can use, but the lighting man and the heating man are thrown on their own resources. In the larger organizations, the morning meetings can be made to produce such ammunition, but for the smaller companies the way is not clear. Without outside help, it is often not easy to spread the light, but why should any man hesitate to embrace the opportunity no matter from where it comes?

There is but one main objective—the sale of current, and the borrowing of sales brains is as logical and as practical as using your own, if you are overloaded. There is a single end in view. The question is—how can we further it to best efficiency? There is no economy in such a work but ultimate economy, and there are organizations of central stations' selling experts available today who can be retained

to develop local data and apply to local institutions the methods of the best minds in the industry; to supply, in other words, the fundamental training essential to every man who sells, a knowledge of his market and his goods.

The central station cannot afford to rest its fortunes on the persuasive powers of its salesman where there is convincing comparative data to be obtained. The salesman must know

his town, he must know other towns, and he must have his information on the tongue, backed by the little red book. He who has ignored its value would do well to call in a man who knows, lest a little progress unaided should satisfy him too soon. What the industry needs right now is more exact sales data, and the only available text books are in the heads of the "men who know."



DOLLAR IDEAS

Advertising at Moving Picture Shows

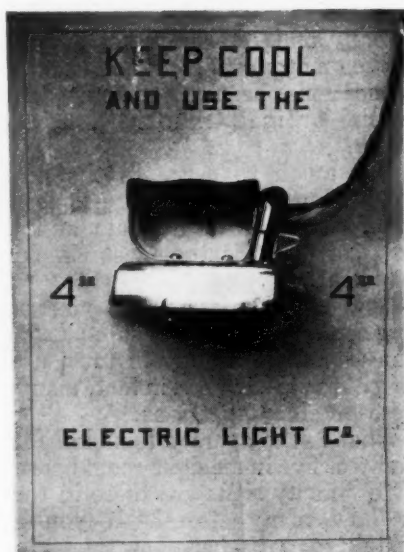
H. WM. SCHMIDLAPP

Com. Agent Great Falls Electric Properties, Great Falls, Mont.



We have secured some very valuable publicity this summer through the use of special lantern slides at the moving picture shows. These slides were worked up as shown in the accompanying reproduction, and we have featured all kinds of appliances. The slides were furnished to all the moving picture shows and about five ads were run during each performance. We paid them from five to ten dollars a month for the service and believe we can trace gratifying returns.

We found that the managers of these resorts were only too willing to take advantage of this opportunity to introduce a little additional revenue, and there seems to be no objection on the part of the audience. There is no reason why a central station should not make use of this medium to present charts showing the percentage of increasing darkness at this time of the year, the percentage of fires attributable to electricity, and to advertise all kinds of timely applications of its service. If properly handled, it represents a valuable opportunity to carry on effective educational advertising, and at comparatively small expense.



ELECTRICAL PROGRESS

**Residence Lighting Number
OCTOBER, 1910**

The Feature of the October number of **SELLING ELECTRICITY** will be another Electrical Progress Supplement, this time devoted to Residence Lighting. :: :: :: :: ::

In August, twenty thousand reprints of the Electric Vehicle Supplement were distributed by Central Stations among their vehicle prospects. The Residence Lighting Supplement will be ready soon after October 1st. ::

If you are not familiar with the purpose of these Electrical Progress Supplements, Turn the Page for Full Particulars and Prices. :: ::

Published by
THE RAE COMPANY
74 Cortlandt St., New York

The Electrical Progress Supplements



are designed to provide the central station with what is to all appearances a complete little magazine for circulation among special prospects. Each issue is devoted to some single phase of the electric life, and concentrated upon one class of central station service, to cover that subject fully and forcefully and leave an indelible impression. It comes to the consumer, to all appearances an independent magazine, containing signed articles, news items and a few manufacturers' advertisements, and every page adds more strength to the general argument for central station service.

Each **Electrical Progress Supplement** appears first as a section in **Selling Electricity**. Then reprints are prepared for distribution by the central stations. Twenty thousand copies of the **Electric Vehicle Supplement** were circulated in August by some fifty lighting companies, large and small. There is even greater need for the **Residence Lighting Supplement**.

This number will be the feature of our October Issue and will contain articles on "What Electricity Will Do in the Home," "The Safety of Electricity," "Wrinkles in Home Lighting," "The Electrified Dining Room Table," "The Choice of Fixtures," and short items on the porch light, wiring old houses, the cellar stair pilot-light, etc. Every item will be written to make the strongest possible impression on the householder,—the residence prospect.

How many reprints can **you** use?

Please send us your order before October 1st if possible. They will cost you \$5.00 for 100, \$10.00 for 250, \$15.00 for 500, \$25.00 for 1,000. Write to

SELLING ELECTRICITY

THE RAE COMPANY, PUBLISHERS

74 Cortlandt St., New York

ELECTRICAL PROGRESS

Residence Lighting Number
OCTOBER, 1910



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74 Cortlandt St., New York

Holophane for the Home

The New Holophane Residence Line Reflectors at last make it possible to secure just enough illumination just where you need it.

WHAT Holophane has done in the development of commercial lighting, it will now do in the development of residential lighting. The new Holophane Residence Line Reflectors combine artistic quality and the sparkle and



brilliance of cut glass with efficiency and exact distribution of light rays. :: :: :: :: ::

No light is wasted through absorption. Ample variety to harmonize with all types of fixtures. Write for complete data :: :: ::

HOLOPHANE COMPANY

Sales Department
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Electrical Progress

Things To Remember In Planning the Lighting Of a Home

A Few Suggestions as to What Makes Most for Thorough Satisfaction

By E. B. Rowe

It makes no difference whether the house is to cost \$2000 or \$20,000, whether you are just building or are considering installing electricity in an already-built house, if it is to be your own home the chief objective is ultimate satisfaction—an installation that will provide every comfort and convenience. And naturally it is no less important in a house for rental, if it is to be a profitable investment.

The most important step, therefore, in planning the lighting of a residence is to secure the services of a man who knows the innumerable points which make or mar the usefulness and economy of the installation. The advice of an illuminating engineer, or one who thoroughly understands the principles of illumination, is of greatest value; for it is not merely light that you require but illumination, adequate, efficient, economical and artistic.

There are four important points to consider: wiring, switching and control, location of outlets, lamps, glassware and fixtures.

The wiring will resolve itself into a choice between "knob and tube work" in a new house, or a "fished in loom job" in an old house, and an iron conduit job in either case. The conduit job is the more expensive and durable, but since every installation must absolutely conform to the laws of state, city, the National Board of Fire Underwriters and the local electric company there need be no fear of danger in the work of any reputable contractor.

One of the biggest advantages of

electricity for residence lighting is its ease and economy of control. It is usually true, of course, that "the nicest thing about the house is the baby," but sometimes it is having light just where you want it, whenever you want it, for as long as you want it, *and no longer*. It means insurance, comfort, and economy of operation.



The Electric Reading Lamp may be plugged in under the table—out of sight and out of the way

There is no flight of fancy in calling a well-planned switching system insurance, for it is—fire and burglar and life. If the cellar light, for instance, is controlled from a wall switch near the head of stairs, it is a ten-to-one chance that the gas or water man will turn it on when he comes to read the meter instead of lighting a match, and

(Three)

then throwing it in the wood pile or in a bundle of papers or clothing, which he might do if he was compelled to grope around to find a snap socket near the furnace. Other similar applications will suggest themselves. As for burglar insurance, it is generally conceded that a flood of light is the most effective weapon against the "second-story man," not only in expelling an intruder but as a preventative as well. If a house is so wired that a group of lights commanding the entire house can be thrown on instantly from the master's bedroom and the lower hall, or any other desirable point, it is a safe bet that the fact is known among the "fraternity" and that that particular house is as free from their attention as a smallpox hospital. This master control of certain lights doesn't raise the installation cost excessively, and has numerous advantages.

As to the comfort and convenience of good switch control, the advantages of electricity from this standpoint are almost too well-known to need mentioning. A wall switch near the door is almost a necessity in every room, particularly in the bedrooms, bathroom, living room and parlor and on the porch light. In the case of multi-light chandeliers or side brackets, it is usually well to provide pull sockets, too, as it very often happens that all the lights are not normally required and provision for extinguishing those not needed results in greater comfort, and incidentally, lower bills. With the modern tendency to use the more efficient tungsten or Mazda lamps and ceiling type fixtures with shorter drop, the snap socket is practically eliminated. The pull socket with its short flexible chain, as a matter of fact, adds largely to the appearance of the fixture and certainly allows much easier operation. The economy of numerous well-placed wall switches and pull sockets is obvious. The easier it is to do a thing the more likely it is that it will be done, and a wall switch within a foot of the door knob certainly makes it pretty easy to remember to turn out

the light when you leave the room, and is conducive to low bills and a pleasant frame of mind.

It is in determining the proper location of outlets and the correct type of light unit that the services of the illuminating engineer are of most value. Good wiring and flexible switch control are of no avail if the illumination obtained is faulty and unsatisfactory. Illumination is governed by four things: location of light source, its candle-power, the form of light distribution obtained from the lamp with its reflector or globe, and the color value of the wall, ceiling and room decorations. Only an experienced man can balance these requirements and obtain the results desired.

In selecting the actual lighting equipment for a residence, the first consideration is obviously illumination, next and of almost equal importance is elimination of glare, and thirdly decorative value and appearance. The increased efficiency of the tungsten and Mazda lamps has emphasized the need of better utilization of the generated light by means of more efficient globes and reflectors. For instance, the writer has in mind the comfortable residence of a relative which has recently been newly wired, and in the living room a four-light gas fixture has been replaced by a four-light cluster fixture of pleasing design and 16-cp. carbons in equally pleasing ground glass shades. Now they find it necessary to use all four lights and a gas table lamp.

So it is proposed to substitute 25 watt tungstens in hopes of raising the intensity so that gas can be dispensed with, but it is safe to predict that the increase will not be very noticeable. It is purely a case of absorption and waste—any light that gets through the shades is directed largely toward the walls, which being a dark green absorb most of it and add very little to the general illumination by reflection. Naturally the same high absorption will exist with tungsten lamps.

Now consider the present four car-

(Four)

bon lamps equipped with an efficient reflector, equally pleasing in shape and appearance, but slightly higher in first cost. Instead of the high absorption in the shades and on the side walls, the light is redirected by the reflector in a downward direction so that it becomes useful on the reading plane. Thus by the use of high efficiency lamps and efficient reflectors and globes it is possible to lessen considerably the number of units required to light a given space satisfactorily, with resultant economy of installation and operation. A knowledge of the distributions of light needed for the satisfactory illumination of the different rooms is therefore of prime importance—likewise the variable nature of the lighting requirements.

Don't forget that tungsten or Mazda lamps can often be used to advantage where the requirements result in short burning hours. For instance, the lamps in a bedroom are used frequently but generally for short periods, and yet the lighting requirements are exacting and consequently the use of high efficiency lamps is warranted. Long-burning lamps, as for instance, porch, halls, living room, kitchen and bath, should always be Mazda.

Remember that dark wall papers absorb most of the light that falls on them, consequently if side brackets are selected, the reflectors used should preferably have an "asymmetrical" distribution, that is, re-direct the greater part of the light away from the wall out into the room. Conversely very light walls help build up the illumination by reflecting the light falling on them. The living room and bath and bedrooms should therefore be light in tone.

Remember that central ceiling fixtures with lamps pendant require reflectors giving a broad distribution below the 60 degree or 70 degree angle, except when it comes directly over a reading or dining table, in which case a concentrating distribution is better.

Remember that lamps at an angle, whether on chandeliers or side brackets should give strong, concentrating

results from each lamp to direct the light downward where needed.

Remember finally that nowhere else does "quality" spell ultimate economy and satisfaction as it does in the lighting of the home.

The Porch Light—What It Should Accomplish

To the average man and woman who build them a home or who build for investment, the porch light is merely an incidental detail in the scheme of lighting. Too often there is no scheme of lighting, for in the majority of cases it gets down to a

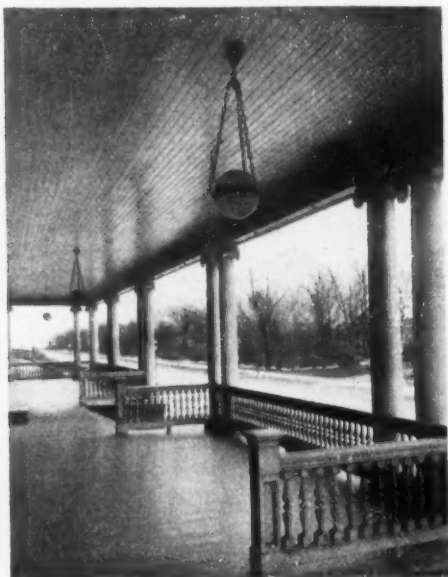


A Well-Chosen Porch Light

basis of, "How many fixtures *must* we buy?"

Down towards the end of the specifications there is a clause that says the contractor shall make an allowance of so many dollars for electric fixtures and so many dollars for finished hardware, and usually the question is, "How much can we save out of this towards buying the window shades or helping with the filling and grading?" Therefore there is a natural tendency

to eliminate the unessential and to forget that, after all, efficiency is a greater and more permanent consideration than economy of first cost. True, the character of the electric lighting installation must be fashioned to the cash in hand, just as rigorously as the pattern of the hardware or the dimensions of the cellar bottom; but behind it all the main point is this—keep in mind the object of each light, see that



Artistic Lighting of a Hotel Veranda

each fixture is designed to satisfactorily provide the convenience and comfort which is the permanent factor. Beyond that the style, the finish, the harmonious effect may be guided by your taste and your affluence.

It has not been so many years since the porch light was regarded as a luxury by those who must needs count one hundred large brown cents in every dollar. And perhaps today it would be less common were it not that the neighbors on either side enjoy them. And so while this fixture figures in most installations in the modern cottage, it is often placed there more because "we ought to have one" than as a careful provision for an essential service. That is why you find before so many front doors an unattractive or obtrusive porch fixture that serves only

to flood the caller with an overabundance of glare and fails in some of its most important functions.

First of all, the porch light should give proper illumination so that you see your way clearly up and down the steps, without such sharp shadows that on going down you stand in your own light and in winter are not secure against black ice.

Second, you must be able to see distinctly from the inside just who is ringing the bell, which means that the light must not be dazzling to the eyes.

Third, sufficient light should be thrown on the house number so that it can be easily read from the street.

Fourth, all the light should be thrown downward by the use of a proper reflector, for the lighting of the ceiling is of little or no value, and the more light that is shed in a useful direction, the smaller the lamp that is required.

Fifth, the porch light should be controlled by a switch placed inside and handy to the door knob, so that the pushing of the switch and the opening of the door are practically one operation.

With a proper diffusing reflector, however, a soft but ample illumination may be secured from a small and economical lamp, and it is far better to keep the light burning over the front door throughout the evening. It is a cheerful greeting to the caller, a much appreciated kindness to the stranger seeking a number, and gives your home a most pleasing and effective touch during the hours when its appearance is most subject to comment.

And the cost of this constant burning is actually very slight, now that the small Mazda lamps are available. If, for example, the hours of burning for the year average three—from 7 to 10 o'clock—and if you use a 15-watt Mazda lamp, it would figure 1095 hours times 15 watts, or 16 1-2 kilowatt hours, which at a ten-cent rate would cost you for current but \$1.65 for the whole year. Surely, it is well worth the while.

This is just one illustration of the importance of choosing your fixture

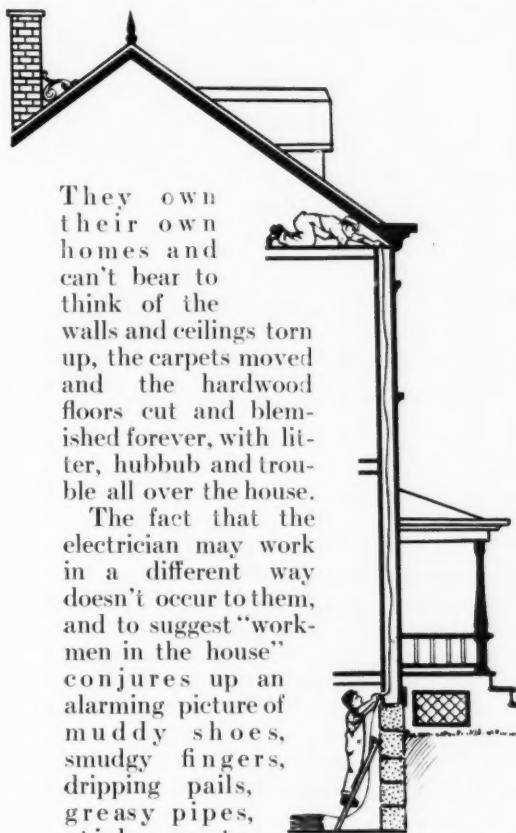
with an eye single to the service it is intended to fulfill. When the cost is so insignificant, why should any home sacrifice the comforts of a well-chosen porch light?

How They Wire Already-Built Houses

A Description of the Ingenious Methods Employed in "Fishing Old Houses"

By Earl E. Whitehorne

There are a great many people in every city who are denying themselves the comforts of electricity, largely because they are afraid of the electrician—the man who puts in the wires.



They own their own homes and can't bear to think of the walls and ceilings torn up, the carpets moved and the hardwood floors cut and blemished forever, with litter, hubbub and trouble all over the house.

The fact that the electrician may work in a different way doesn't occur to them, and to suggest "workmen in the house" conjures up an alarming picture of muddy shoes, smudgy fingers, dripping pails, greasy pipes, sticky paste, sawdust and chips, as though the man who puts in electric light wiring is a hideous combination of all the trouble painters, plumbers,

paper hangers and carpenters can devise. And so they wait, sacrificing the comforts of electric service because of a misunderstanding, because they don't realize that with the electrician the easiest way is the cleanest way.

How does he do it? By a mighty clever and ingenious system of "fishing" wires up and down through the walls and in and out under floors, an interesting system to watch and one that brings the results with no cutting of walls that is not covered by the fixtures and no taking up of floors except in attic and closets. The two accompanying diagrams tell the story.

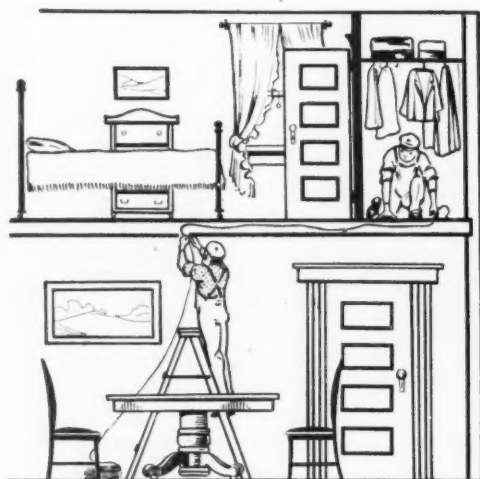
The wires usually enter the house in the cellar, though sometimes in the attic or from a back porch, but at any rate a pair of wires will be run to the third floor to connect the attic lights, and the outlets on the second floor. In this case the electrician will probably take up a single floor board at the side of the attic and lower a thin steel tape called a "snake." This he will jiggle up and down, and perhaps it will be necessary to try between three or four beams before he finds a clear drop. Finally, however, it slips down and the helper in the cellar grabs the snake, ties on the wires and they are pulled up. In exactly the same way, other wires are fished down the side walls or under the garret flooring to catch all the little holes made in the plaster where the second floor lights are to be located. No matter whether they are to be side wall or ceiling fixtures there is always room between wall studs or floor beams.

When it comes to wiring for the lights on the lower floor, it is a little more difficult, especially when there are hardwood floors upstairs. Still, the process is the same, for the snake still does the trick. The side wall outlets are reached by fishing through the little hole in the plaster down into the cellar, and to reach the ceiling outlet in the dining room or parlor, a small section of flooring is taken up in a closet above and the snake is worked through from there. If no closet is in line with the outlet, as

Fishing the Wires from Attic to Cellar

occasionally happens, or if the floor beams run cross-wise and block the way, a section of base-board is lifted out and the line is run from there.

And so they work, the electrician and his helper, one man at the little hole and the other on his knees in the closet above. They fish their snake up and down, in and out, back and forth and pull through the wires incased in protective conduit, until the job is done. No hole is made in wall or ceiling that is not covered by fixture canopy or switch plate, every piece of closet floor is nailed back at once, the little sawdust is swept up and the little chunks of plaster are caught as



How They Fish the Wires from a Closet

they fall. There has been no noise, the furniture has been practically undisturbed and no material has been brought into the house, except a few coils of wire and a few paper bags and boxes of porcelain and brass fittings.

That's the way the already-built house is wired. From first to last the main object is to do the job without damage to the house, and the nature of the work prevents noise and dirt. There is no reason why any family should deny themselves the comforts of electric lights, electric heating appliances, the electric vacuum cleaner, and the many comforts which electric service affords, for fear of the electrician.

The Cellar Stair Beacon Light

How to Insure Yourself Against Forgetting to Turn Off the Cellar Lights

There isn't one man in fifty who, during the winter, doesn't notice occasionally, as he comes home at night, that the cellar lights are burning. That means that the maid has come upstairs and forgotten to turn the switch and from one to three lamps are burning to no purpose. It happens about every so often or oftener "in the very best regulated families."

Each time, the man-who-pays-the-bills walks out to the kitchen, cuts off the cellar circuit from the head of the cellar stairs and cautions the maid once more, for a few pennies saved are just as good as so many earned. But how often does it happen that this same man leaves those same cellar lights burning, when he comes up from fixing the furnace for the night? Well, most people do it several times a winter.

Forgetting to turn off this switch may be usually counted on to add anywhere from a few to many cents to each monthly bill, and since forgetfulness is a basic element of the human make-up there is nothing to do but reckon on it and juggle the line of least resistance till it works your way. The answer is—install a little beacon light at the head of the stairs to shine in your eyes as you climb and both you and the absent-minded maid will turn off the switch, simply because the little beacon light suggests it every time.

It is a simple matter to install this penny-saver. Simply have your electrician place a keyless receptacle just above the switch controlling the cellar lights, and cutting it in on the wires that run to the switch. Then screw into the receptacle a little 2-candle-power red lamp and when the cellar lights are on the little beacon burns its warning into your eyes as you come up the stairs. The cost of installing this beacon light is very slight, the added consumption of current practically nothing; and it saves the price of much exasperation and many hours of useless burning of the cellar lights.

(Eight)

Wrinkles in Home Lighting

There are a good many "little wrinkles" in the arrangement of lights and switches that make a tremendous difference in the lighting of a house, and these differences mean more comfort, more convenience, more pride in your home, more thorough lasting satisfaction. Like every other ingenious scheme, most of these little tricks are extremely simple and mean practically no added expense to the installation, but they are the very things we are most apt to overlook until too late. Here is a list to serve as a nucleus to the man who expects to build or wire his house; and for the home already enjoying the benefits of electric service there may be some suggestions which will point "the easier way."

The Closet Door Switch. In most coat closets there are dark corners, where the wary overshoe lurks and mingles with its big and little brothers. A small lamp can be installed inside the closet and out of the way, controlled with a door switch, so that as the door is opened the light goes on. A pull socket should be used, so that when the closet is being aired the light need not burn. This is just as great a comfort in other dark closets, cellar storerooms and the like.

Avoid Bathroom Shadows. In arranging the location of the bathroom lights, very few people think of the shadows they throw on the window shade if not properly placed. Never have the lights opposite the window, especially if the tub is between. In the bedroom never have the dresser between light and window.

Have Side Wall Switches Handy. Locate the side wall switches so that they are beside the door which is most used in entering the room and on the knob side of the door, so that it may be handy on entering and will not be covered when the door is swung open wide.

Double Control Switches. In the living room or dining room, where there are central ceiling fixtures with several lights, a side wall switch can be wired so that a part or all of the lights may be burned as desired. This is both convenient and economical.

The Cellar Beacon Light. The cellar lights should be controlled from a switch at the head of the stairs. Beside this switch should be a little red lamp to remind you to turn off the lights as you come up the stairs. This will save many hours of wasted light.

The Turn-down Lamp. Turn-down lamps are indispensable in bathrooms, bedroom and upper hall. The convenience of a night light is a luxury but without expense, for this baby filament consumes practically no current.

Three-way Switches. That is the name for the side wall switches that control the upper and lower hall lights from either position. It is an

unending comfort and protection and should never be omitted.

Asymmetrical Reflectors. These are reflectors that throw the bulk of the light in one direction. Take advantage of them in long halls, for throwing light into closets, in the bathroom for shaving or whenever more light is needed in one direction. They cost less than bigger lamps and higher bills.

Small Reflectors on Portables. Most art glass portables give a poor light for reading. With little Holophane reflectors on each lamp the illumination will be greatly improved, without bad effect to the artistic appearance of the portable. The most efficient portables are equipped in this way, as in the "G-M" Lamp.

Base-board Receptacles. There cannot be too many base-board receptacles, for they provide handy connection for heating appliances, vacuum cleaners, fans and portables needed from time to time in every room in the house without an exception.

Current Taps. Where there are no base-board receptacles available, current taps can be screwed into the fixtures, to connect up any appliance desired without sacrificing the light.

These are a few suggestions which mean much to the solid, satisfied enjoyment of the hours at home. When you build your house, when you wire your house, or when you are ready to add to its comfort and convenience, bear these little wrinkles in mind.

Why Your Bill Gets Bigger

JAN'Y	40.46	
FEB'Y	44.35	
MARCH	49.59	
APRIL	55.28	
MAY	59.99	
JUNE	62.64	
JULY	60.99	
AUGUST	57.12	
SEPT.	52.08	
OCT	46.51	
NOV	41.53	
DEC.	38.44	
YEAR	50.75	

Chart Showing per cent. of Light and Dark Hours in Each Month.



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The HYLO-ECONOMICAL TURN-DOWN ELECTRIC BULB is designed for use in RESIDENCES and MILLIONS are NOW USED in UP-TO-DATE HOMES. CONVENIENCE and ECONOMY are the principal features.

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HYLO electric bulbs are recommended by lighting companies for HALLS, BATH ROOMS, SLEEPING ROOMS, PANTRIES, KITCHEN and wherever a LOW light will suffice which can instantly be changed to a HIGH light or out without any effort.

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HYLO is also made in Mazda type in all styles as illustrated.

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The Selecting of Fixtures

Fixtures are hard to buy because the selection of something you expect to live with is always a serious matter. Therefore it is a lamentable fact that most men do not really select their fixtures *for a reason*. They love to "put off the evil day" until forced to it and then after a hasty inspection of the fixture man's display say, "Well, that will do all right," and buy in five minutes, without study, one of the most prominent features of the home.

There is real enjoyment in the possession of fixtures of obvious quality and good taste, just as there is constant subconscious irritation in being surrounded by objects of uncongenial, cheap and shoddy tone, therefore when you select fixtures, take time, give thought and have patience. The idea behind the selection of every fixture



should be the desire for honest companionable character, as well as mechanical and electrical excellence.

Don't take the polished brass, or old brass finish just because that's what hangs in the fixture man's display room. Hold in your mind's eye the picture of the room to be served and work for harmony in design, in illuminating effect and in finish. Then, if it calls for old brass—buy. See that the glassware is in accord with the spirit of the fixture, and the whole in turn with the spirit of the room.

But before all, remember that the purpose of every fixture is to provide adequate, economical illumination. Make it as convenient, as satisfying, as practical as you can, for when you buy fixtures to live with, you don't want "gingerbread work" but plain, honest, substantial, enduring worth.

REGINA

Pneumatic Cleaners

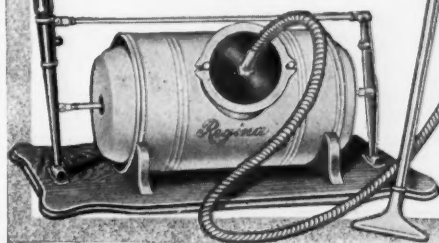


Don't confuse the Regina with ordinary vacuum cleaners which have only single suction pumps. Every Regina Pneumatic Cleaner has *double pumps*, insuring powerful, constant, unrelenting suction with no lost motion.

Reginas are made in our own factory by skilled workmen and are sold under a positive guarantee. They are the easiest to operate and the most satisfactory of all cleaning machines. Electric and hand-operated models. Interesting descriptive literature will be sent on request.

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These Shock Absorbers "Swing," "Shake" and "Wobble."

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Safety of Electricity

In the whole long list of possible dangers to which the human race is exposed, there is not one for which there are as many safeguards as the danger of fire from electrical wiring. The fire insurance companies all over the country have united, since the early days, to absolutely regulate and control the conditions under which electric lights are installed and operated. Their rulings absolutely determine the safety of every piece of equipment that goes into your home, for before the electric light company will connect any house for light, it must be inspected twice by the underwriters' inspectors, once for wiring and once to see that the fixtures are properly installed.

In addition to this, every state, every city, and every individual lighting company has its book of rules which govern the conditions under which electricity may be sold and used. This is all for the protection of the consumer—for your protection.

Does it work out? Is the system sure and un failing in practice? Here is an illustration taken from one city

—quite similar to any other city of like size as to its fire hazards. The comparison of the causes of fires in Louisville from January 1 to June 8, 1910, gives the astounding fact that while but two were caused by electricity, both being of a minor nature, two hundred and two were caused by overturning and exploding lamps, defective flues, stoves, heaters, sparks, hot ashes, coal oil, gasoline and matches, thus showing the safety of electricity to be equal to its convenience. The classification of the causes of the fires for this period, taken from the records of the Louisville Fire Department (false alarms, incendiary and unknown origins eliminated) shows:

DEFECTIVE FLUES	68
STOVES AND HEATERS	12
SPARKS	20
COAL OIL AND GASOLINE	10
HOT ASHES	18
LAMPS	14
MATCHES	12
ELECTRICITY	2



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Utility Traveler's Outfit	\$6.00
El Tosto, the bread toaster	\$3.50

Each includes 8 ft. of flexible cord and connections, ready to attach, for which I enclose the necessary amount.

Attachment for Irons and El Tosto are interchangeable. Where one cord is used for both, deduct one dollar.

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Your Illuminating Co.
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Bread Toaster
Makes Delicious Toast
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COLORS

Crackled Crystal
Rose Tinged Crystal
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A New Porch Fixture with Austrian Glassware

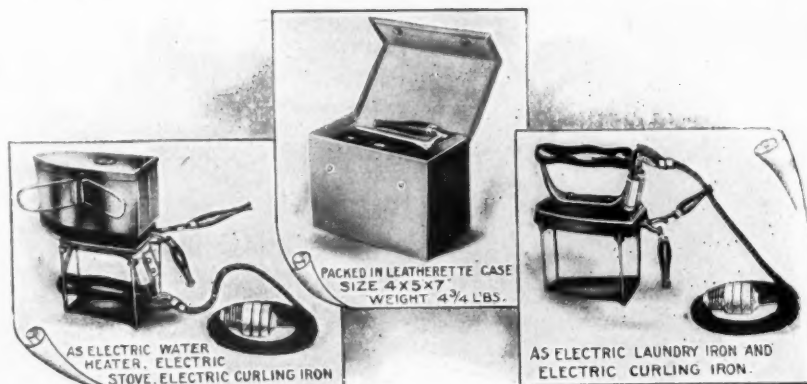
This new glassware is unique in appearance and effect and gives ideal illumination for the porch.

The fixture is wired and ready to screw on the ceiling and costs at retail only \$1.50. Ask your dealer, or write to

A. EDGAR GOETZ,
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A Complete Electric Ironing, Cooking and Heating Combination Set, Ready to Attach to any Electric Light Fixture for ... \$6.50

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Excel Appliances used and approved by
Leading Electric Light Companies

One 3-lb. Excel Traveler's Iron for all kinds of pressing in the living room, kitchen, back porch or hotel bedroom.

One Combination Stand, which makes the flatiron into a stove with about 10 sq. inches surface, large enough for a small frying pan, cereal double boiler, etc.

One 1½-pint Utensil or Cup for making a warm drink, heating shaving water, cooking eggs, warming Baby's milk, etc., etc.

One Folding Curling Iron, always clean and ready in a minute.

Complete Outfit in case sent prepaid to points east of the Mississippi River for \$6.50. Cash with Order

State Voltage of Circuit

THE LOWE ELECTRIC CO.

54 VESEY STREET

NEW YORK CITY

(Fourteen)

References:

Greenwich Bank of N. Y., N. Y. City.

National State Bank of Newark, Newark, N. J.

*Are You ENTIRELY
Satisfied with
your Lamps?*



A good many people go along with the idea that all incandescent lamps are about the same.

They're not.

Franklin Lamps have quality, character, hardiness—invariably satisfactory because unvariable in character.

Take the Franklin 40-watt, small bulb "Mazda" Lamp, for example. It is distinctively the lamp for residence lighting—plenty of light at just the right current consumption—serviceable, dependable, color-true.



If you are not ENTIRELY satisfied with your lamps, try FRANKLIN just ONCE. Use is proof.

**The Franklin Electric Manufacturing Co.,
HARTFORD, CONN.**

Factories: HARTFORD, CONN., and MIDDLETOWN, CONN.

NEW YORK BUFFALO PHILADELPHIA BALTIMORE ELKHART ST. LOUIS
SEATTLE LOS ANGELES SAN FRANCISCO ATLANTA LOUISVILLE

(Fifteen)



You can use G-E Tantalum Lamps to advantage in hundreds of ways

Don't jump to the conclusion that the Tantalum lamp has been crowded out by more efficient lamps. If such were the case we would stop manufacturing them. But the large and ever-increasing demand proves that this lamp has a field of profitable usefulness in nearly all classes of service where small units are employed. You will find it an excellent adjunct to the MAZDA lamp for localized lighting with small units, such as desk and table lighting, because of its great strength and brilliancy. In homes, offices, stores, theatres, hotels, mills, factories, depots, railroad platforms and wherever excessive vibration and hard service prohibit the use of more efficient lamps, you will make no mistake in substituting the G-E Tantalum Lamp. Its greater economy and great durability make it an economical substitute for the ordinary 10 and 16-c.p. carbon lamps under practically every service condition.

Why G-E Tantalum Lamps are Tough

The metal tantalum possesses many characteristics that adapt it particularly for use as filaments. It can be drawn into a fine wire, is as hard as the hardest steel and has 33% greater tensile strength than steel. It is this latter characteristic of tantalum metal that makes the G-E Tantalum lamp so sturdy that it can successfully withstand excessive vibration and severe shocks.


The Origin of the Name Tantalum

If you happen to be one of the many who have asked: "What does Tantalum mean?" here's the answer. The fabled Tantalus was condemned to stand up to his chin in water which he was forever unable to reach with his lips. As the metal tantalum cannot be acted upon or dissolved by nearly all chemicals, Tantalum, even in the midst of acid, is unable to take any of the liquid to itself.


Send For This Bulletin

If you have not received your copy of our latest bulletin, No. 4766, "G-E Tantalum Incandescent Lamps," just off the press, write for it to-day. Its 15 pages are crammed with interesting information and convincing facts.

General Electric Company
Schenectady
N. Y. 2761



100-125 volt,
80-watt meridian
and 25, 40 and 50-watt
regular



200-250 volt,
80-watt meridian
and 50-watt regular

(Sixteen)



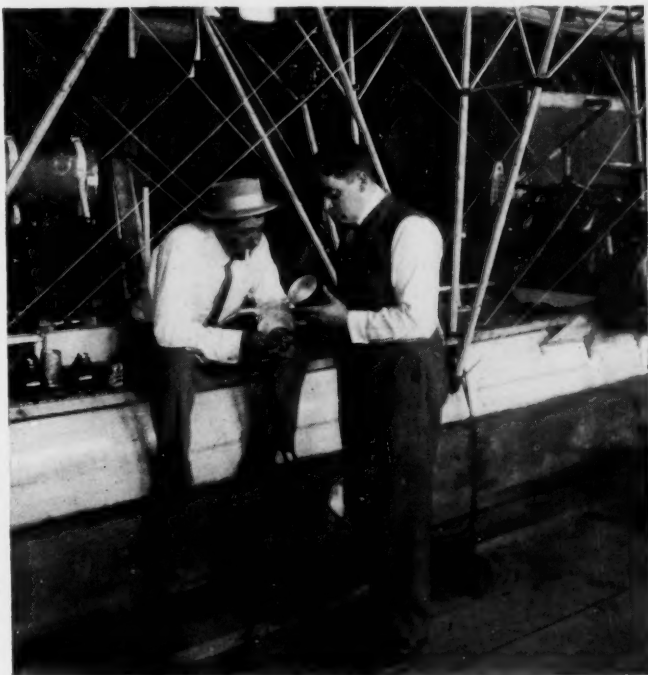
"Putting One Over"

A Little Story That Shows the Value of Keeping an Eye Open for Opportunities

By Frank B. Rae, Jr.

Anybody could have done it, to be sure, but the solemn fact remains that only one man tried to do it. Wherefore, the one man is receiving the thanks of his employers and the congratulations of his friends, while the vast army of might-have-done-its are quietly kicking themselves behind the woodshed or in some other soft spot. Which proves two things: first, that there is no particular honor attached to seeing an opportunity unless you grab for it; and, second, after you have grabbed, somebody is sure to say, "Anybody could have done it."

However, the man who did it was one B. F. Whelan, and the thing he did was to equip an airship with incandescent lamps. Anybody could have done it; lots of people will do it in future; but nobody but B. F. can boast of having done it first. And the whole value of the operation consisted in that—doing it first. For the first electrically lighted airship is a novelty. People talk about it. It means free space in the newspapers and trade papers. The lamps that he put on the first trans-Atlantic airship are not necessarily any better for being there, but they become mighty interesting on that account. People want to know what lamps are used on this first air-



B. F. Whelan at Work on the Airship

ship installation; you do, yourself, right now. And people want to know how they were used, and why, and how it happened that these particular lamps happened to be used.

To relieve all anxiety, let me state that the lamps were Buckeye, Whelan being a Buckeye man. If Whelan had been working for John D., I have no doubt the airship would have been illuminated with Standard Oil. The whole point, however, is not the name on the lamp, but the fact that the lamp that Whelan works for is the lamp that went on the ship, and the reason it went on was because Whelan put it there. He saw an opportunity to do something spectacular—something that would make people talk about the Buckeye lamp. And by

the exercise of a quick wit, by keen appreciation of the opening and quick action in taking advantage of it, he secured for his company a vast amount of free advertising.

But, let me hasten to add, Whelan is not an advertising man. He is a salesman. He had to look outside of his immediate environment to see the opportunity, and he had to go "outside of his class" to seize it. Another point: after he had seen the airship and found a place to put his lamps, he had to figure out how to string the wires and generate the current to set them burning. This meant a couple of days in overalls alongside a greasy mechanic, and some tall guess-work in the matter of unusual circuits and difficult insulation. The equipping of an airship, it may be remarked, is not a big order.

Now, the moral of the story is this: Every day in the year there come opportunities for securing just such favorable publicity for your central station as that secured by Whelan for Buckeye lamps. To be sure, an airship doesn't start for Europe every day, but this case is cited simply as an example. Other things happen every day—things that can be used to keep the public interested in electricity. It takes some perspicuity to see them, some initiative to go after them and frequently some hard work to make the connection, but always such publicity is worth the price.

If you don't believe that it's worth the effort, consider the negative effect of adverse publicity. In the old days somebody said that a fire started from "crossed electric light wires." That phrase has been used hundreds of times by every newspaper in the land, and it has cost the central station industry millions of dollars worth of business, yet how many central station men ever saw in it an opportunity for favorable publicity? How many central station men ever went to an editor with a piece of reinforced cord to show him, by a single example, the tremendous margin of safety which electrical wiring has?

The lighting of the airship was a clever example of favorable publicity; the threadbare "crossed wires" story is a well-known example of adverse publicity. Any public utility corporation is bound to get publicity of one sort or the other, and it rests very largely with each company as to which it shall be. It is not safe to trust your publicity to chance and the inactivity of the enemy, any more than to rely on Providence to regulate your voltage.

There were a hundred other lamp salesmen who knew as much as Whelan about the Wellman airship, for they read their morning papers just as regularly. He was on the lookout for favorable publicity, however, and saw the opening—that's all.

Are you?

Pennsylvania State Convention

The third annual convention of the Pennsylvania Electric Association was held at the Glen Summit Springs Hotel, Glen Summit Springs, Pa., September 14-16. It was the unanimous opinion of all present that this was the most successful convention the association has ever held, there being a large attendance and much enthusiasm.

President W. W. Freeman and Secretary T. C. Martin of the National Electric Light Association were present and addressed the opening meeting. President E. L. Smith (Towanda) of the Pennsylvania Association in his address reported the remarkable growth of the organization—from 12 members in 1908 to 464 at the present meeting.

The following papers were presented:

1—Advantageous Points in Station Operating, by T. G. Coghlan, Scranton.

2—New Types of Lamps from the Operating Standpoint, by G. E. Brett, Wilkesbarre.

3—Operation of Electric Vehicles, by W. A. Manwaring, Philadelphia.

4—Rates, by L. H. Conklin, Pottsville.

5—Investment Justified by Smaller Companies for Securing Power Business, by H. M. Blake, Jenkintown.

6—Domestic Appliances, by W. A. Donkin, Pittsburg.

The discussion of these papers was remarkably spirited and general, and much valuable information was brought out. This was particularly true of Mr. Coghlan's paper on "Central Station Operation" and Mr. Brett's paper on "New Types of Lamps from the Operating Standpoint." In the discussion of these papers it was shown that the principal interest of the members as regards lamps is centered at this time in the subject of tungsten street lighting. Much interest was shown in the paper on "Operation of Electric Vehicles" by Mr. Manwaring, and many questions were asked of the manufacturer's representatives who were present. There was a wide discussion of Mr. Blake's paper on "The Investment Justified by Smaller Companies for Securing Power Business" and a wide range of experience was reported by members from various sections of the state.

Mr. Conklin's paper on "Rates" demonstrated that the interest which is centered on this subject throughout the country is no less acute in Pennsylvania. Mr. Donkin's paper on "Domestic Appliances" was exceedingly interesting and developed into a lively experience meeting.

A very interesting feature of this convention was an independent meeting of power men for the purpose of organizing "A Power Men's Club of the State of Pennsylvania." After consultation with the officers of the association, it was decided that for the present it would be better to conduct this movement independently, the primary object being to effect an interchange of ideas and an exchange of installation data between the power men of the state.

The following gentlemen were enrolled as charter members: Newton F. Lewis, Scranton, Chairman; Thomas E. Spence, Kingston, Secretary; H. A. Waite, Easton; R. F. Lloyd, Philadelphia; A. L. Hart, Pottsville; J. B. Wharton, Wilkesbarre; Thomas S. Henderson, Connellsville; M. A. Pool-

er, Newcastle; E. F. McCabe, Lewistown; F. K. Woodring, Titusville; H. S. Orth, Williamsport.

The secretary was instructed to secure suggestions from each member looking to the adoption of a uniform sheet to be used in all reports on power installations. These reports will be very exhaustive, going into the matter of mechanical efficiencies, influence on output and economies effected.

It was announced that it was not the purpose of the Pennsylvania Power Club to act in any way counter to the similar national movement which has been authorized by the N. E. L. A.; to the contrary, all power men throughout the country are invited and urged to co-operate. It is hoped that before long there may be a national association power section with which the Pennsylvania organization can be logically merged.

The entertainment features of the convention included dancing, automobile and tally-ho rides, baseball games and vaudeville, and were greatly enjoyed.

The following officers were elected for the ensuing year: President, A. R. Granger of Chester; Vice-President, R. S. Orr of Pittsburg; Secretary and Treasurer, Van Dusen Rickert of Pottsville. Executive Committee: M. J. Fogerty of Erie, W. C. Anderson of Plymouth; F. M. Noecker of Renovo.

New England N. E. L. A. Convention

The second semi-annual convention of the New England Section of the National Electric Light Association was held at "The Griswold", New London, Conn., September 13 and 14. Under President Alex. Campbell, a very interesting program was presented, and all of the arrangements for the comfort and entertainment of the delegates and guests were of the best. The convention was honored by the presence of President W. W. Freeman and Secretary T. C. Martin of the National Electric Light Association, and over 250 members with their guests were in attendance.

When the first business session was called to order by President Campbell,

Secretary Gibbs announced an increase in the membership from 564 in March to 688 on September 1st, with a gain of 68 Class B and 47 Class E members. Then followed addresses by President W. W. Freeman and Secretary T. C. Martin of the N. E. L. A. and President Campbell of the New England Section. Mr. Martin reported that the enrollment in the national body now numbers 5792.

The program consisted of only four papers as follows:

1—The Advantages of a Uniform System of Rate Making, by Howard Corning, Bangor, Me.

2—Illuminated Advertising—Its Possibilities, by L. D. Gibbs, Boston.

3—Special and Decorative Street Lighting, by J. A. Hunnewell, Lowell, Mass.

4—Opportunities, by Levin J. Chase, Concord, N. H.

It was expected that a very full and interesting discussion would follow the paper on rates, but the delegates soon realized the futility of trying to accomplish much by open discussion and the chairman was therefore authorized to appoint a committee which would investigate the subject very thoroughly and report at the spring convention next year.

Mr. Gibbs' address on electric signs was illustrated with stereopticon slides and explained the methods used by the Boston Edison Company in educating the public by means of popular stereopticon lectures.

Mr. Hunnewell's paper on special street lighting, which is abstracted elsewhere in this issue, provoked considerable interesting discussion. It was suggested that special street lighting, applied where window lighting and sign lighting business is comparatively undeveloped, results in stunting the growth of these two very desirable classes of business. The extreme case cited was that of St. Louis, where the brilliant arc lamp illumination makes unnecessary, even undesirable, the employment of window illumination. The discussion soon swung to the desirability of sign lighting and Mr.

W. H. Blood, Jr., of Boston created something of a stir by stating that he believed electric signs would be practically eliminated within ten years.

Mr. Frank B. Rae, Jr., of New York pointed out that there is grave danger of restrictive legislation against electric signs unless the central stations adopt the same stand as the better magazines and newspapers and prohibit all beer, whiskey and other objectionable electric advertisements. Mr. Davenport of Providence cited a case where a large whiskey sign in his city has been directly responsible for the passage of a very onerous sign ordinance.

The last paper on the program and the one which created the most enthusiasm was that of Mr. Levin J. Chase, which is printed in abstract elsewhere in this issue. Mr. Chase described his experience in overcoming adverse public sentiment towards his company. The fact that he had no experience in central station problems prior to his assuming the position of manager, gave his views particular interest.

Among the entertainment features of the meeting were a steamer trip to Fort Wright, Fishers Island, N. Y., where the party was entertained by the commanding officer, and a banquet on Tuesday evening.

The New York Electrical Show

The Fourth Annual New York Electrical Exposition will be held at Madison Square Garden from October 10 to 20, inclusive. This year's exposition will have all the salient features of its forerunners with much added material to interest the electrician, the user of power and the general visitor. Something like seventy of the leading manufacturing firms, laboratories and private inventors will be represented with the latest models and inventions in the field of electricity. About 50,000 square feet of space will be available to exhibitors.

The same excellent taste will be displayed in decorating the interior and providing attractive booths and show places for the display of instru-

ments and machinery as formerly, and there will be a specially fine display of electric vehicles, lamps, batteries and material of interest to the users of electric current. The general decorative scheme of the interior this year will be green and white. The fixtures and treatment of lamps will be entirely new. The exhibitors' section will be of Dutch Colonial design on the main floor and the mezzanine platform. The New York Edison Company, the Edison Electric Illuminating Company of Brooklyn, and the United Electric Light & Power Companies will have displays, with reception rooms and store fronts, illuminated to show the difference between carbon and tungsten lamps, and with exhibits of various styles of window dressing by the aid of electric illumination.

Among the interesting features promised, is a demonstration of the long distance wireless telephone. Visitors will have an opportunity to communicate over 4 to 5 miles with people in steel buildings, as proof that the interfering problem of steel in this connection is capable of solution. The illumination scheme of the garden and tower has received the closest attention, and the ceiling will be studded with about 10,000 lights. The tower will have a bank of flaming 100-hour arc lamps on every side, forming the most brilliantly illuminated place in the world, with almost incalculable candle-power. Incidental to the exposition, the convention of the Electric Vehicle Association of America will be held during the term of the exposition.

A. Larney Joins Byllesby Staff

Mr. A. Larney, formerly a member of the new business department of the Dayton (Ohio) Lighting Company, and later with the A. & W. Electric Sign Co. of Cleveland, has joined the commercial organization of H. M. Byllesby & Co., as manager new business department with the Oklahoma Gas & Electric Co. Oklahoma City presents a fallow field and Mr. Larney is very enthusiastic over the prospects.

It is interesting to note that twenty-one years ago this city was a farm; sixteen years ago a village; and today, according to the present census, boasts about 70,000 people. There are eight or ten very beautiful office buildings of from ten to fifteen stories, and it is stated that at present there is not a vacant store or house in the town.

New Pittsburgh Sign

This sign has recently been installed on top of a 12-story building in Pittsburgh by the Allegheny County Light Company to advertise the location of the main office. Each sign is made up of three sections, themselves mammoth signs 100 feet long by 45 feet high. There are 2950 lamps installed



in all, 4-cp., 30-v., 12-watt lamps being used.

The turning on of the big sign was made the occasion of a banquet tendered by the Allegheny County Light Co. to the city officials and leading business men, and held on the roof of the building.

Fradette in Altoona

Mr. D. F. Fradette, for some time Contract Manager with the Merchants' Heat & Light Company in Indianapolis, has resigned from that company and joined the commercial organization of the Penn Central Light & Power Co., with headquarters in Altoona.

Mr. R. L. McClellan has succeeded Mr. Fradette in Indianapolis.

SELLING ELECTRICITY

OCTOBER, 1910

THE NON-TECHNICAL MANAGER

The most successful paper presented before the New England N. E. L. A. Convention was delivered by an ex-Wells-Fargo expressman. One of the most successful small plant managers in the middle west received his training in a steel mill. The president of one of our largest metropolitan central stations started as a stenographer.

The idea that a central station manager must be a technical graduate, or that the central station business is a technical business, is fast dying out. A good many men are realizing that the technical end of a central station is subordinate to the business end, and that it can be handled by subordinates drawing subordinates' salaries. It is being acknowledged more generally that the business end requires a business man and that it is altogether unnecessary for this business man to possess more than a superficial knowledge of the technicalities of generation and distribution.

Mr. Chase, whose paper on "Opportunities" is abstracted in this issue, is a central station manager of only eleven months' experience. Prior to that he had acted as treasurer for his company for a period of ten months; prior to that he had been routing express packages and handling express business continuously for twenty years. He took up the management

of the Concord Electric Company with no knowledge of the customs, systems, rules, usages and formalities of the lighting business. He had, however, a broad business experience, a keen insight into human nature, and—what is really exceptional in this industry—an earnest desire to actually deserve the good will and patronage of his community. He was old enough to differentiate between ignorance and dishonesty on the part of individual customers; and he was patient in dealing with ignorance and adamant in dealing with dishonesty. In short, he was and remains, a shrewd, kindly, far-sighted business man intent upon making the greatest ultimate profit for his stockholders.

It is altogether remarkable that Mr. Chase's paper should have been received at the New England Convention with such spontaneous approval. New England is a hard country and its people have taken on the characteristic of hardness. That such an audience as the New England central station men should wholly approve of Mr. Chase's sentiments; that they should applaud his accomplishment and be sobered by his preachment, is pretty conclusive evidence that they realized the sanity and practical advantage of sound business methods applied to central station business, even though those methods are applied by a man who knows next to nothing about the generation and distribution of current.

THE ETHICS OF ELECTRICAL ADVERTISING

The advertising sections of the best magazines, the ad columns of the best newspapers, even the street car cards of certain syndicates, are care-

fully censored and neither objectionable copy nor the advertising of objectionable goods is permitted. In some of these media the advertising of whiskey, beer, patent medicines of many descriptions, promotion schemes, etc., are absolutely prohibited, though such advertising is the easiest to secure and advertisers frequently offer bonuses to have their announcements accepted.

Of course the publisher loses nothing by this rejection of easy money. The foundation of his success is the esteem in which his publication is held, and he finds not only that the better class of his readers appreciates cleanliness in advertisements, but that many substantial advertisers will not patronize a paper in which suggestive, tricky or otherwise objectionable ads are permitted. In short, the publisher makes a virtue of necessity.

Bill-board advertising and what is known collectively as "outdoor display," on the other hand, receives no such censorship. The advertiser can go as far as he likes, short of actual obscenity, and there is no restraint upon either the matter or manner of his announcement. And because the people who sell and the people who purchase the objectionable products are by nature unrefined, the bill-boards are coarse, crude and garish. Even those hoardings employed by men of good taste are almost invariably an offense to the eye, because in the competition for attention the most startling incongruities of form and color must of necessity be employed. The result is that throughout the land there is being waged a warfare against the bill-board and in suburban communities they are rapidly being eliminated. This wave of reform, or rather of elimination, for there seems to have

been no idea of beautifying the bill-boards, but only of destroying them—this wave is now rising to include the electric sign. In New York City, the Fifth Avenue Association and the *New York Times* are lifting up their voices, and while both have axes to grind, they already talk of state-wide legislation to restrict or destroy electric advertising. In Providence, R. I., the presence of a large whiskey sign so stirred the church folk that a very stringent ordinance was passed to hamper the erection of future signs. In Washington there is likely to be a similar storm, and mutterings in other localities indicate that unless some restraint is placed upon electric advertising, there will be strenuous times ahead for both the sign makers and the central stations.

The subject was discussed at some length at the New England meeting of the N. E. L. A. It was urged there that central stations and sign men should unite to exercise a certain restraint; that they should be guided by the same ethical considerations as guide the more enlightened magazine and newspaper publishers, rejecting the business of beer and whiskey manufacturers and vetoing both vulgarity and blatant bad taste.

It might be argued that lighting companies have no right to discriminate against any advertiser and no power to censor any design. That is hardly true—or if it is true, then it is a point in our favor. For what could be more convincing evidence of a desire to preserve public morals and enhance civic beauty than to be sued by a disgruntled distiller for refusing service to a vulgar or suggestive whiskey sign?

It must be remembered that in this

matter we are dealing with fanatics. Sanity, justice, honesty of purpose or fairness of method are as nothing to a person endeavoring to accomplish a "reform." So long as we permit objectionable signs on circuit we give the crusader something to tear down—something to destroy—something upon which to vent his fanatical energy. On the other hand, if we assume leadership in the effort to raise the standard of taste and decency, we are disarming prejudice and taking from the fanatic his one most cherished asset.

The lesson of the Jeffries-Johnson fight should not be forgotten: how the purists raved against its brutality until a state governor broke the law to prevent it, while in the same state and in practically every state hundreds of brutal, unscientific pugilistic contests were "pulled off" in the same week. These "reformers" cared nothing about real reform; they desired only to prevent a single notable bout. So with the electric sign; the movement is not to reform any sign or any city's signs, but to destroy and tear down single examples which have offended the "reformer."

The most obvious way of meeting the situation is to "beat 'em to it." This is simple: adopt and abide by the sound and progressive principles which guide publishers of standard magazines.

PENNSYLVANIA POWER CLUB

The organization of the Pennsylvania Power Club, by the central station power salesmen in attendance on the recent convention at Glen Summit Springs, Pa., is an interesting sign of progress. Eleven power men brought together by the annual meeting of the fraternity found that they were of one opinion as to the pressing

necessity for some adequate medium for inter-communication on power subjects. Consequently they decided to organize and exert their efforts as a body to advance the movement for which so many men all over the land have appealed.

Central station power salesmen need more data, real figures on real installations, that represent a power problem thoroughly considered and solved in a practical, profitable manner. The scarcity of such authoritative material represents a very serious handicap to the industry, for though a man be however clever, the development of a perplexing opportunity, the proper handling of a complex installation, requires more than ingenious versatility; it demands a fund of exact and provable information that comes only from actual day-by-day, job-by-job experience. Since in the gross, such data will resolve itself gradually into a record of fact and figures, it matters little just whose experience it represents. If the record is complete and dependable it is a text book, and it is a logical step for one power man to add to his own experience the observations of his brothers and unite the whole for the common use.

The members of the Pennsylvania Power Club will co-operate in the drawing up of a standard report form which will embrace the salient features of any characteristic power installation, covering method of application, load and power factors, influence of output, consumption of current per unit of output, effect on the plant efficiency and individual economies effected, and similar points, with an ample report on any local conditions which might effect the figures as compared with a similar installation elsewhere.

In short, the reports will be uniform and as complete as can be devised, so that the application to each company's rate will be easily worked out, and convincing to the prospect.

Each member of the club will periodically send in to the secretary a stated number of such reports on installations in his territory. All the members will then be notified as to the material on hand, and can call on the secretary for such data as they

desire. A cordial invitation is extended to all power men, wherever located, to join this movement and co-operate to the end that a national scope may be realized.

The progress of this organization will be watched by the industry with considerable interest, and the Pennsylvania power men are to be congratulated on having actually launched this long-discussed and much-needed work.

Electrical Progress The Manufacturers

A New Rotary House Pump

The electrically driven house pump is a valuable source of revenue to the central station. A new rotary pump for this service has recently been placed on the market by the Rotary



House Pump Co., 103 Park Ave., New York City, an adaptation of the invention of Herr Wilhelm von Pittler of Berlin, Germany, which has been in extensive and satisfactory operation for several years.

The Pittler System provides a reliable and constant water supply without intermediate water storage tanks for office buildings, hotels, apartment houses and other buildings too high to be served by the regular city pressure. The apparatus is entirely self-contained, consisting of an electric motor direct connected to a rotary pump with pressure chamber, regulating switch, etc., all on one base.

The pump itself is constructed on an entirely new and very interesting principle, but space here does not permit of a detailed description. As a result the water issues from the pump without spurts or jerks, which is a great advantage, particularly where the pump is used for fire protection, since the stream ejected from the hose "carries" much farther than one of an unsteady character, which is broken up at the nozzle when it comes in pulsating contact with the air. Furthermore, pipes or hose are much less liable to burst under the constant pressure, and the familiar "throbbing" of pumping systems, operated by reciprocating pistons, is entirely eliminated.

The new house pump system is now on the market for general water supply. By its use, the disadvantages of the tank system, such as freezing in

winter, and supplying warm, stagnant, germ-infested water in summer are entirely eliminated. There are no complicated mechanisms and intricate wiring systems to maintain the water pressure; no work by the motor except when the water is actually being drawn off. In a tank system all of the water has to be pumped to the roof tank whether it is to be used on the ground floor or the top, whereas with the Rotary House Pump Company's system, the water is never lifted higher than needed. The saving in electrical energy is therefore very great and the extra piping to the elevated tank is eliminated. The first cost and maintenance of large tanks, extra piping to the tank and extra wiring from the tank switch to the basement is avoided.

The pump and control are all self-contained and occupy but little space in the most convenient location. The attention required is negligible and the only maintenance charge is the occasional renewal of oil in the motor and pump bearings. Central station salesmen will find the descriptive catalog of this new invention well worth a little study.

A General Utility Motor

The new general utility motor now being placed upon the market by the Westinghouse Electric & Manufacturing Company marks the latest advance in the application of electric motors to household convenience. The new motor should commend itself heartily to the favor of central station companies, as it provides one more wedge for the introduction of electricity into the home. Furthermore, it is essentially a day load and takes from 40 to 120 watts for its operation.

The general utility motor can be readily arranged to operate the family sewing machine, buffing, polishing and grinding wheels, ventilating blower, jeweler's lathe, light machinery, sign flasher, moving window display, etc. A different attachment is not necessary for every one of the uses mentioned above, as some of the attachments make the motor available for several

purposes without change. The general utility ventilating outfit is one of the features of the new apparatus. The small blower will supply fresh air to the kitchen, increase the draft of a furnace, remove foul air from sick rooms, and readily adapt itself to any small ventilating work.



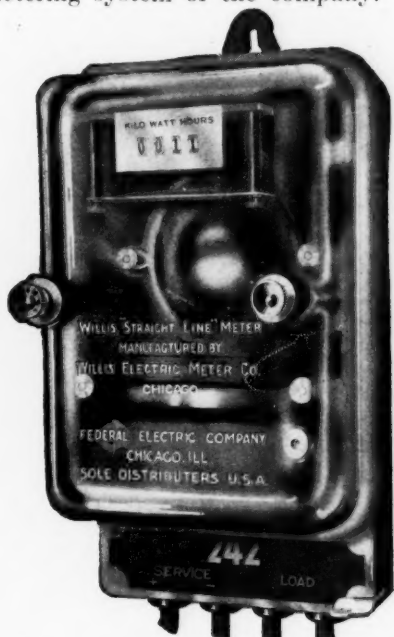
The motors are made for operation on 115 and 230-volt direct-current circuits, and on 110 and 220-volt alternating circuits of 60 and 133 cycles, and run at a speed of 1700 rpm. They are light and can be easily carried from place to place by means of a handle in the top of the frame.

A Watt Hour Meter With Numeral Dial

The Federal Electric Company of Chicago has introduced a new type of Watt Hour Meter, which will be welcomed by the complaint department of every central station as well as by every salesman. It is called the Willis "Straight Line" Meter. It is a small meter in a glass case with an indicator that registers in numerals just like reading the miles in an automobile.

It is the desire of all far-sighted and broad-thinking central station managers to eliminate so far as possible all of the small causes for complaint and annoyance on the part of customers

and the differences of opinion between the company and the customer. Along this line it is very important that the customer shall feel a most unbounded confidence in the meter and the metering system of the company.



This meter is small, occupies little space, and is not objectionable to the consumer for that reason. The glass case enables him to "see the wheels go 'round," giving him interest and confidence in the adjustment and perfection of the mechanism. The plain, direct reading dial is as simple, or even more simple, than the figures on a grocer's scale or the physician's thermometer. The whole is calculated to inspire confidence and promote harmony between the company and its customer, which is being looked upon as of greatest importance by the successful central station operators.

In place of the usual index dial, the Willis Meter has an index showing a line of plain figures. These figures are always full, never at any time showing themselves at half or quarter positions. All the working parts of the index are gold-plated, which prevents all chances of corrosion, even if it were possible for moisture to enter the meter. It

has the further advantage of registering the same on direct or alternating currents without recalibration or re-adjustment.

The term "Straight Line" is drawn from the calibration curves, showing the percentage of accuracy from start on low load up to full load.

Motor-Driven Eraser

Every draftsman knows that mistakes in inking tracings are bound to occur and that changes in design are frequently necessary so that alterations must be made in the tracings. With a light, fast motion, the ink may be removed without injury to the tracing cloth; but there are very few draftsmen who have the patience to do the work without putting too much pressure on the rubber, which produces a scar on the cloth. A rapidly revolving circular eraser, driven through a flexible shaft by a small motor, places at the disposal of every drafting room a perfectly satisfactory means of removing ink from tracings.

The Westinghouse motor-driven eraser is equipped with a one-twentieth horsepower motor, running at 1700 rpm., and taking power from any convenient lighting socket. The circular eraser is securely fastened in place by a wing to allow for renewals.



A cleaning rubber is arranged to touch the rotating circular eraser very gently and remove the ink which would otherwise collect; adjustment is made by the movement of a sleeve on the handle of the erasing head. The flexible

shaft is about 3 feet long, permitting a large tracing to be covered, as the shaft can be bent in a curve of short radius.

A single erasing outfit is sufficient for any ordinary drafting room, as it is customary to locate the eraser permanently on one table and bring all the work there. If preferred, the motor may be moved about from desk to desk as occasion requires, lighting or special sockets being provided in convenient places for connecting the motor to the circuit.

The complete outfit consists of a motor, for either direct or alternating current, flexible shaft and three circular and three cleaning erasers. The convenience and saving of time effected by its use would warrant the expenditure of a much larger sum than it costs.

This equipment is manufactured by the Westinghouse Electric & Manufacturing Company, Pittsburg, Pa.

Advertising "The Bill Raisers"

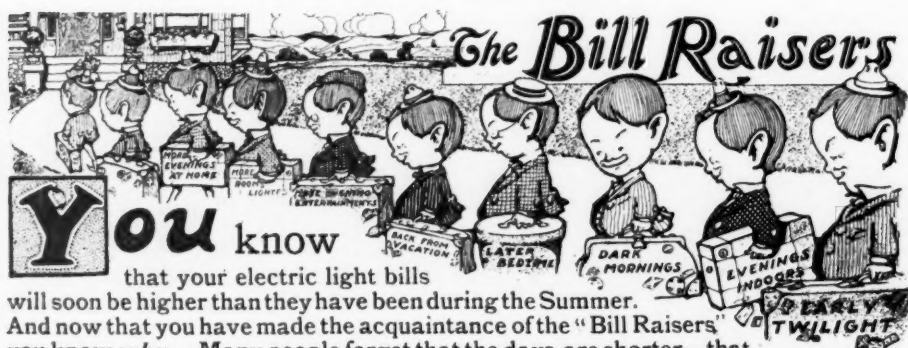
This is a reproduction of the general heading of a full-page \$3000 ad which recently appeared in *The Saturday Evening Post*. It is worth reading as one of the best examples of broad gauge educational advertising and the Pacific Electric Heating Company, of

Los Angeles, deserves the commendation of every central station in the land, for the advertisement has been read in every town and city in the country.

The money was spent and the ad was run to advertise the "Hot Point" iron, the balance of the copy being devoted to the iron itself. But the clear intent and sole value of this heading, however, was to center the attention of the reader on the reasons why lighting bills are creeping at this time of the year, and to intimate to every possible purchaser that should they buy an iron, the entire increase in the current cost next month should not be attributed to it alone. It takes the burden of explanation and proof off the shoulder of the central station man.

Of course, this is an obviously wise policy for the manufacturer, since a sale to be permanently profitable must carry satisfaction, but this part is not uncommonly left to the lighting company. When it is considered that the circulation of *The Saturday Evening Post* is over one million and a half, and further, that a full-page ad with such a grotesque heading is probably read by a large proportion of that circulation, the value of such a piece of advertising to the central station industry can be appreciated.

THE SATURDAY EVENING POST



that your electric light bills will soon be higher than they have been during the Summer. And now that you have made the acquaintance of the "Bill Raisers" you know why. Many people forget that the days are shorter—that the electric lights are turned on earlier and used later—that for numerous other reasons more current is needed in winter. And forgetting these reasons they are surprised when their lighting bill increases in the fall. You should remember that the "Bill Raisers" come from natural reasons—that it would be a mistake to deny yourself the comforts—the good cheer—the pleasure they bring.

The Opalux Company Formed

A new company has been organized, known as The Opalux Company, to manufacture and market the Opalux Reflector, which has enjoyed a wide popularity for some time.

Opalux Reflectors are now offered in several new forms for all popular sizes of lamps. The wide, medium and narrow angle types offer a choice of style best suited to the particular use to which the reflector may be put, and all the styles are applicable to residential as well as to public commercial lighting. Opalux Reflectors are claimed to be as efficient as they are decorative, and are recommended for their soft, comfortable, yet abundant light under all sorts of working conditions.

The Opalux Company has acquired all the patents, moulds, trade-marks, etc., and aims to perfect and standardize the various lines, maintaining the high efficiency possessed by Opalux. Mr. H. M. Slauson is Sales Manager and Mr. L. R. Hopton Advisory Engineer. The office of the company is located at 258 Broadway, New York City.

Prof. Ashe to Lecture to G. E. Lamp Men

Professor Sydney W. Ashe, who is well known in the lighting field for his educational lectures before the Lighting Company's employees of New York, Brooklyn, Boston, Baltimore and elsewhere, is conducting a series

of educational lectures for the benefit of the sales and engineering staff of the General Electric Company Lamp Works at Harrison, N. J. This is another important step in the General Electric policy of furnishing efficient sales engineers for the benefit and assistance of their customers. The company has already a large corps of technically educated solicitors who have specialized in lamps and illumination ready to be sent as an auxiliary help to lighting companies in their fall campaigns.

Refrigeration Data

The Triumph Ice Machine Co., of Cincinnati, has issued Bulletin No. 508 entitled "A Profitable Day Load—Refrigeration," which is worth the attention of every central station salesman. This company manufactures equipments for various applications on central station service and offers to actively co-operate with any lighting company who will make an active campaign for refrigeration business.

The bulletin contains many half tones of various installations and much pertinent data.

SALESMEN WANTED—Several states still unoccupied. Particularly Georgia, Idaho, Kansas, Louisiana, Minnesota, Oregon and Washington. Chance for a man in each who knows the Electric Lighting Business in his own state to turn his *special knowledge* into dollars without necessarily interfering with his present occupation. Address "Development," care of Selling Electricity, 74 Cortlandt Street, New York.

Grooved Skeleton
Letters



Angle Iron Frame
677 Lamps

Electric Signs Like This One are Erected by Us in Any Part of the Country

HALLER SIGN WORKS (Inc.)

704 So. Clinton Street, Chicago

In writing to advertisers, mention "Selling Electricity."



The Ham Attachment

Most convenient
wiring device
brought out in
the last decade

For sale by all jobbers

Patented November 17, 1908

E. W. HAM,

5 Barton
Place

Worcester, Mass.

FAIRBANKS, MORSE & CO.

Can Help You Sell Surrent

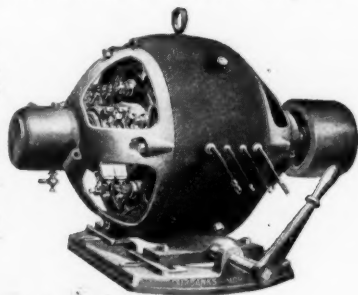
We have trained Motor Salesmen who understand showing the consumer the advantages of the Electric drive.

They will work with you and for you if you give them half a chance. Try us.



We manufacture A. C. and D. C. motors from 1-2 H.P. to 500 H. P.

Send for Bulletin No. 1402EX and further information, mentioning this publication.



FAIRBANKS, MORSE & CO.

Chicago, Ill.
Cincinnati, Ohio
Cleveland, Ohio
Richmond, Va.
Jacksonville, Fla.

New York, N. Y.
Louisville, Ky.
Detroit, Mich.
St. Louis, Mo.
Indianapolis, Ind.
Omaha, Neb.

Atlanta, Ga.
Denver, Col.
Kansas City, Mo.
New Orleans, La.
Colinga, Cal.
Portland, Oregon

St. Paul, Minn.
Minneapolis, Minn.
Milwaukee, Wis.
Salt Lake City, Utah
Spokane, Wash.
Seattle, Wash.

San Francisco, Cal.
Los Angeles, Cal.
Bakersfield, Cal.
Santa Maria, Cal.
Taft, Cal.

Canadian Fairbanks Co., Ltd., Sole Agents for Canada

In writing to advertisers, mention "Selling Electricity."

The Largest Installation of Mazda Sign Lamps Ever Made

12,000 Bryan-Marsh Mazda Lamps
5-watt, 4-candle-power, were used in the
signs and display lighting of the Denver Gas
and Electric Company's new building. This
tremendous installation is evidence of the con-
fidence inspired by the quality of

Bryan-Marsh Lamps

A lamp for every service---best service
from every lamp

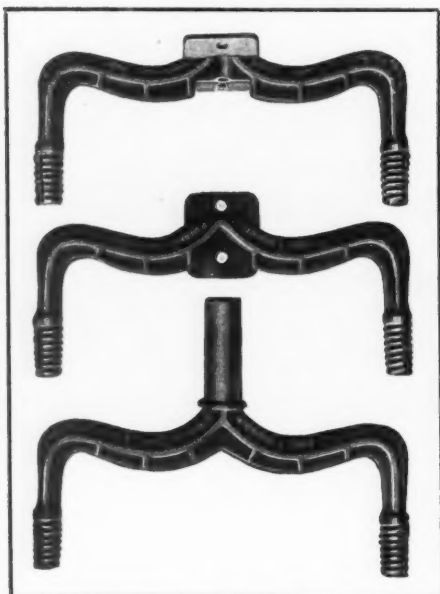
BRYAN-MARSH COMPANY

Largest exclusive manufacturer of incandescent lamps in the world

CHICAGO, ILL. :: :: CENTRAL FALLS, R. I.
NEW YORK MINNEAPOLIS DENVER SAN FRANCISCO

BREAK ARMS

ALL OF THE ACCESSORIES



FOR OUTDOOR LIGHTING

See Circular No. 19.

ELMER P. MORRIS CO.**THE OUTDOOR LIGHTING SPECIALTY HOUSE**

94 West Street, New York City

The "IMPERIAL"

A Portable Vacuum Cleaning Machine combining efficiency, practicability and economy.
Can be attached to any electric light socket.



"The only High-Grade, Efficient Machine on the Market." Guaranteed. A Dividend Payer for Central Stations. Growing concerns and responsible parties wanted as agents. Exclusive territory given. Send for Catalogue and particulars. M'd in 2 sizes.

Price, \$100.00 and \$75.00 Complete.

EMPIRE VACUUM COMPANY,

112 West 30th Street, New York.

District Office: 702 Postal Telegraph Building
Chicago, Ill.

COMPETING WITH GAS

It is hard to get contracts for Residence Lighting in competition with Gas, be it natural or artificial.

Excess Indicators permit a rate that makes this competition easy.

Small stores and residences now lighted by gas will give as much net profit as ordinary power customers.

Our controlled flat rate proposition at one cent per watt per month absolutely guarantees results.

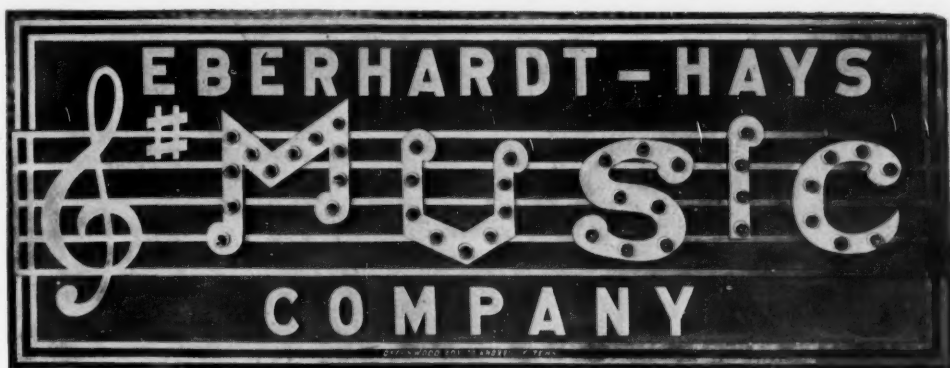
Write for an appointment and get the facts and figures from the man who know. Address

General Sales Manager

Excess Indicator Company

241 West 42nd Street, New York

In writing to advertisers, mention "Selling Electricity"



ALL METAL SIGNS, WITH ALL APPROVED MATERIAL

TO COMMERCIAL MANAGERS OF CENTRAL STATIONS

The majority of your Customers want Commercial Electric Signs. We can supply you designs and give you prices that will get the business.

All of our signs show *Individuality*, the small ones as well as the larger spectacular displays.

We keep several designers busy supplying Central Stations and also furnish Designers and Solicitors for assistance in healthy Sign Campaigns. Let us know your needs. We have just issued a supplement to our New Bulletin of interest to Central Stations. Ask for it.

Greenwood Advertising Co.

KNOXVILLE, TENN.



In writing to advertisers, mention "Selling Electricity."

Your Future Lighting Revenue--What?

The lamp with an efficiency of about $1\frac{1}{4}$ w. p. c., a drawn wire filament and **small candle-power** will soon be here---what have you done to prepare for it?

Past

Lamps : Carbon, $3\frac{1}{2}$ to 4 w. p. c.—16 candle-power.

Revenue based on kw. hr. consumption. Any and every kind of business sought.

Present

Lamps : MAZDA, $1\frac{1}{4}$ w.p.c.—20 to 80 candle-power.

Revenue based on kw. hr. consumption. "More light for the same current" sought.

Future

Lamps : MAZDA, $1\frac{1}{4}$ w. p. c.—10 and 8 candle-power, perhaps 5, 4 and even 2 candle-power !

REVENUE ? ? ? ? ?

What will your revenue be based on when the new lamps arrive ?

Can you supply current for 4 and 5-watt lamps on the same basis as you did for 50 and 60-watt lamps ?

YOU WILL NEED NEW BUSINESS---PROFITABLE BUSINESS---AND LOTS OF IT TO REPLACE THE LOSS FROM YOUR PRESENT CUSTOMERS.

The MAZDA Controlled Demand Rate is the entering wedge for New Business and our Demand Limiting Device furnishes the best and cheapest means of applying it.

A post-card today will bring you printed matter on the subject and, if you ask for it, a sample of our instrument for 30 days' trial, with full directions for operating it. Address

Henry Thermo-Electric Company

No. 3 Scott Ave., Newport, Vermont

The work that

The New Edison Storage Battery

is doing in the electric vehicle industry is the biggest boost that the industry has received since it began—and it means a bigger, better off-peak load and more profit for every central station.

The Edison Storage Battery has made the electric vehicle industry a **sure shot**. It has brought **the one thing** to the industry that it lacked—the absolute certainty of getting **there and back** on one charge. It has brought practically double the mileage formerly accomplished by electric vehicles otherwise equipped. It has brought **confidence** to the electric vehicle owners, who will now equip their cars with Edison Storage Battery—and prospective owners who will insist on Edison Battery equipment in the cars they buy.

The Edison is different. It

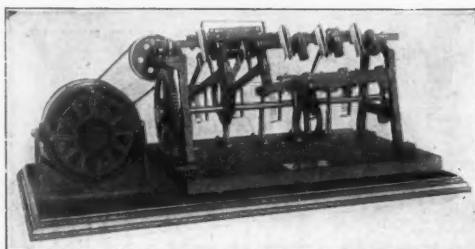
is iron and nickel in an alkaline (potash) solution. There is no lead or acid in its construction. Its weight, per capacity, is only about half that of the lead battery. It is not injured by overcharging, by complete discharge or by standing idle, either charged or discharged, for any length of time. There is no sulphation, no deterioration. Its life is many times that of the lead battery.

Every Edison equipped vehicle that goes on the road is a boost for the industry **and** for the Central Station. It's up to every Central Station to boost for the Edison.

Edison Storage Battery Co., 123 Lakeside Ave., Orange, N. J.

ASK THE FLASHER MAN

ABOUT YOUR PROSPECTS



WE are always in position to give you any kind of information on spectacular effects. We suggest new ideas, we tell you the best effects, we give you pointers on spacing of lamps, we tell you how to economize on your wiring cost, we tell you how to produce the best effects at the lowest cost of flasher and wiring. :: :: :: :: ::

We sell the kind of flashers that enable you to look a customer squarely in the eye a year afterward with a clear conscience. :: :: ::

REYNOLDS DULL FLASHER CO.

150 FIFTH AVENUE,

: : :

CHICAGO, ILLINOIS

"SOMETHING FOR 400-500 WATT LAMPS"

For Some Time the Trade Has Felt It Was Coming
It Is at Hand!



Catalog No. 6141

BENJAMIN REFLECTOR SOCKETS

with deeply hooded one-piece enameled steel reflector and a properly related one-piece large base socket are the happy solution of the perplexing problem. Let us tell you of our extensive new line of fixtures for various kinds and ranges of lamps. Write for

REFLECTOR SOCKET BULLETIN No. 7

**FOR LARGE
BASE LAMPS**

BENJAMIN ELECTRIC MFG. CO.,

New York: 27 Thames St.

Chicago: 120-128 So. Sangamon St.

San Francisco: 151 New Montgomery St.

In writing to advertisers, mention "Selling Electricity."

Mott Lamp Posts

STANDARD OF QUALITY

Established 1828



2046 J

**Ornamental Lighting Posts
for all Purposes**

SPECIAL TO CENTRAL STATIONS

We will be glad to co-operate with your New Business Department and submit special designs for Commercial Lighting Projects.

Send for our New Catalogue

The J. L. Mott Iron Works

118-120 Fifth Ave., New York



Simplex Electric Toasters

will sell more current—add new consumers and sell other electric heating and cooking devices later, because it quickly shows its efficacy on the table in daily use, shows the benefits of electric household helps and demonstrates the worth of



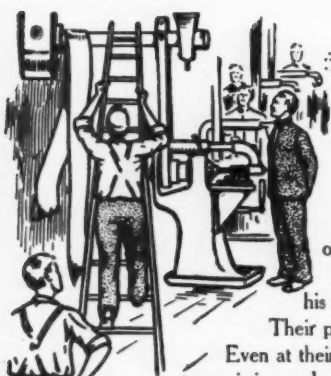
Write for "Selling Helps."

SIMPLEX ELECTRIC HEATING CO.

Cambridge, Mass.

Monadnock Block, Chicago
612 Howard St., San Francisco

In writing to advertisers, mention "Selling Electricity."



Another Busted Belt

These accidents are probably common enough in your locality and you ought to take advantage of them.

Perhaps the manufacturer thinks they don't cost him much -- but here is his entire force standing around idle and not producing a penny's worth of work.

Their pay goes on just the same though whether it's 10 minutes or an hour.

Even at their best line shafts and belts are actually wasting 35 per cent of the power in transmission and you can easily prove it to him.

You better persuade him to discard them and

Equip His Machines with Fort Wayne Motors

They will save this waste and increase the quantity and quality of his work.

They will decrease his expense because his power will cost only in proportion to the work the motor does. When the work stops his expense stops.

However, there is a lot of difference in motors and since it won't cost a cent more to supply him with the best, by all means sell him a Fort Wayne. Our bulletin "Motor Drives" tells why.

Fort Wayne Electric Works

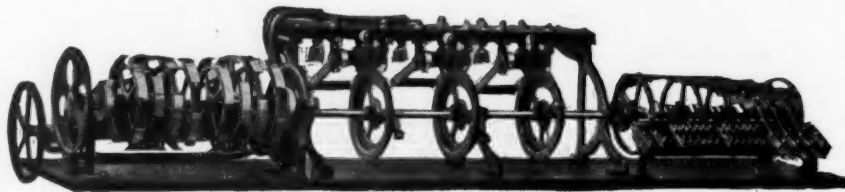
"Wood" Systems
1604 Broadway
Fort Wayne, Indiana

M16



RECO FLASHERS

are used by the largest sign manufacturers. WHY?



Because of their flexibility of adjustment, simplicity and general serviceability. Correct electrical effects and satisfaction guaranteed. Large variety. Eleven distinct types. (Approved by the Underwriters.) Have you received our new bulletins?

Reynolds Electric Flasher Mfg. Co.

Largest Manufacturers of Flashers in the World

New York Office
1123 Broadway

Factory and Main Office, 195 Fifth Ave., Chicago

In writing to advertisers, mention "Selling Electricity"



Design "C."
G-M (Godury-Marshall) Lamp

The Advantages

of a single light source in a reading lamp are immediately appreciated by the discriminating buyer.

Yet

This is only one of the many features of

The G-M Lamp

The Electric Motor & Equipment Co. NEWARK, N. J.

SOME TALKING POINTS THAT WILL SELL

Everson Cleaners In YOUR City

Weight
35 lbs.

Price
\$80

- 1—Can be lifted by the little finger
- 2—Greatest effective suction
- 3—Safety valve to protect motor
- 4—1-6 H. P. Holtzer-Cabot motor
- 5—Indestructible vulcanized fiber case, non-conductor of electricity
- 6—No screws, clamps, or catches
- 7 etc.—On request

The Good Points of All

The Bad Points of None

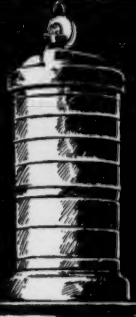
Everson Mfg. Co.
30 Oliver Street



BOSTON, MASSACHUSETTS

In writing to advertisers, mention "Selling Electricity"

General Electric VERTICAL Flame CARBON Lamp



The G-E Vertical Carbon Flame Arc Lamp gives more light than any other kind or type of electric lamp known. This new lamp's remarkable light giving power is due primarily to its wonderful lower electrode, a carbon tube with specially prepared core, the successful result of an extensive research covering a period of years.

The Most Powerful and Economical Lighting Unit for

Foundries, Factories, Wharves, Mills, Railroad Shops and Yards and Construction Work

In addition to its light giving power, this new lamp gives more light *on less current* than any previous type of arc or incandescent lamp. It is therefore the most economical high candle-power lamp for use in foundries, factories, yards, etc.; in short, any place requiring single lighting units of great candle-power. Initial installation and operating costs are low and the lamps are easily installed.

One G-E Vertical Carbon Flame Lamp gives as much light as four or five ordinary arc lamps. Therefore, a few of these lamps will replace many times the number of the types of arc lamps most commonly used for this class of lighting. Your request for further information will receive prompt attention. When desired, our nearest representative will be pleased to demonstrate the many exclusive features of this remarkable new lamp.

**General Electric Company
Schenectady, N. Y.**

2715

In writing to advertisers, mention "Selling Electricity"

910

Oct



A. & W. Stock Signs For Central Stations



Solid Background Porcelain Enamel Electric Signs NOT SECTIONAL

24 Different Kinds Carried in Stock Ready for Immediate Delivery

Any live commercial department solicitor can place a dozen of these attractive signs in one week.

Beautiful blue porcelain enamel backgrounds with white porcelain enamel letters and border.

NET PRICES TO CENTRAL STATIONS

Double Face Signs		14-Inch Letters	3 Lamps High
Bar,	\$31.00	Lunch,	\$51.00
Bank,	40.00	Drugs,	51.00
Cafe,	40.00	Hotel,	51.00
Soda,	40.00	Cigars,	61.00
Hats,	40.00	Garage,	61.00

Send for miniature porcelain sample sign and blue prints with prices on full line.

The A. & W. Electric Sign Co.
CLEVELAND

HOTEL CHARLEVOIX

The leading hotels are recognizing the advantages of high-class electric signs. Both the Auditorium and the Congress Hotels the "Annex" in Chicago have recently installed Federal Signs. Their superior quality and construction caused their adoption where ordinary signs were tabooed. Are you going after the hotel business in your towns with **FEDERAL SIGNS?**

FEDERAL ELECTRIC COMPANY

MANUFACTURERS

LAKE AND DESPLAINES STREETS CHICAGO

Write for Display sign Bulletin No. 133A

THE HOTEL CHARLEVOIX

DETROIT, MICH.